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JOURNAL

OF THE



Strikes Persuasive Note

On the Disease-Control Problem

Men versed in the details of disease control in farm animals will approve the article entitled "Farmer Vaccination of Hogs" in the August issue of the *Journal of the American Veterinary Medical Association* which points out wherein lies the risk of exposing livestock to the promiscuous use of biological products.

The reproach comes as a reassurance that knowledge of medicine can not be abolished on the farm and replaced by unscientific application of preventive measures without (1) sacrificing the present interest of the livestock industry, (2) jeopardizing the future security of American agriculture, and (3) degrading the dignity of a learned profession.

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Journal of the American Veterinary Medical Association

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President's Address

CHARLES W. BOWER, D.V.M.

Topeka, Kansas

AS YOUR chief executive officer, I wish to extend greetings to all: to delegates from other nations, visitors of allied professions, and to our neighbors to the north and south.

This event of 1944 is not unlike the first convention of the American Veterinary Medical Association which was born during a war—the struggle between the states. The organization was christened the United States Veterinary Medical Association and retained that name for thirty-five years. When its authority was extended beyond the international boundary in 1898, it adopted its present name. Today, as at the first meeting, veterinarians of this continent are holding a convention to discuss problems which vitally concern nations at war. Like those who met in New York City eighty-one years ago to study means of providing a more adequate military transportation and of more efficiently combatting diseases of food producing animals, you likewise are gathered here to discuss the newer and more effective methods of conquering the agencies which deplete the nation's food supply. Once more, veterinary medicine has accepted the challenge to fight the enemies of animal health. Once more, veterinary medicine has organized its forces to aid a war-torn world.

More than a century ago, Napoleon observed that "an army marches on its stomach." Today, more than ever, a great war is also a war of food—a war of the morale which depends to a large extent upon food. It is said that nothing will depress morale among fighting men more surely than poor rations, and we know that nothing breaks

down the spirit of civilians like subnormal nutrition. To help win this war we are, therefore, charged with the maintenance of a high degree of morale in the field, on the sea, in the air, on the farm, in the factory, and in the home, through the conservation of food, and certifying to its nutritive value and safety. Because the capacity of our country to produce food is vast, we are reputed to have the best fed soldiers and civilian population in the world. In the midst of the greatest war of history—a war for popular government and human freedom—we are faced with maintaining these standards against great difficulties. The personnel of the armed forces consume twice as much food per capita as in civilian life. The men and women in the essential war industries also require more than normal amounts of food. Moreover, we have to provide abundantly for our allies. Manpower on the farms has been reduced. It is, therefore, our imperative task to conserve the sources of food to the utmost. Waste is sabotage and so are the preventable diseases of livestock. It is, therefore, a patriotic duty for veterinarians to meet in the heart of our great agricultural country to plan and to discuss measures which minimize the waste from ill health among farm animals. You are here at a great personal sacrifice, demonstrating your determination to fulfill important duties during perilous days.

ACKNOWLEDGMENTS

Again, I wish to express my deep appreciation for the opportunity to serve as the president of the great organization repre-

senting veterinary medicine on this continent. As promised last year in outlining the year's work, I have given the Association the best I have. If mistakes have been made, be assured they were not intentional. I also wish to acknowledge the able assistance received from the officers, the committeemen, state secretaries, constituent association, and friends.

The ideas I shall present subsequently are not new nor all original. Some have been mentioned at former conventions but, being rational, they will bear repeating. As your president, I have had the occasion to travel extensively during the year. I have met with, and talked to, veterinarians in each of the association districts, having visited the majority of the states and Mexico. In addition to veterinary meetings, I have met with livestock associations, producers, manufacturers, veterinary colleges, public health associations, legislative bodies, and civic clubs. In these contacts I have seen a good cross section of veterinary medicine and its needs, and have had the opportunity to become acquainted with some of the problems of related interests.

Committees have given generously of their time and have taken their respective functions seriously. It was my privilege to meet personally with many of them. Others were communicated with by mail. I have always contended that committees should consider suggestions from the president, but that he should not dictate nor unduly influence their reports.

Since many constituent associations hold their annual sessions during the first two months of the year, conflicting dates prevent the president from attending more meetings. Their officers should arrange dates with the executive secretary to prevent over-lapping events as much as possible. The AVMA owes this to the associations, as most of them desire to have a national association representative on their programs.

The president's home work, consisting of conferences and correspondence, has been exceedingly heavy this year. All letters were answered as promptly as possible; if not always to the complete satisfaction of the recipient, interest was shown in every problem presented and as much assistance as possible was given. Moreover, I have worked with the resident state secretaries in obtaining new members. A personal let-

ter was sent to the non-members of every state, appealing for membership. The foregoing summary is given because I feel that the membership is entitled to this kind of information, boring as it may seem.

WOMEN'S AUXILIARY

I am delighted to note that the Women's Auxiliary is continuing with its established policy, and is making plans for the future. The virtue of a ladies' auxiliary probably stands for more in veterinary medicine than in any other profession. The wives, mothers, and daughters of veterinarians take a profound interest in professional affairs, judging from their attendance at meetings. Happily, a greater number of state and local auxiliaries are being established. Some of them were suspended "for the duration." This, I believe, is a mistake where the men's association work was not interrupted. The auxiliaries are needed because they increase attendance. I, therefore, urge the women's auxiliaries of constituent associations to carry on, and I urge all members of the AVMA to encourage the ladies to attend meetings and to affiliate with the national Women's Auxiliary—a deserving recognition. The percentage of auxiliary members is far too small—approximately five per cent of the total membership. To stimulate interest and to enlarge the membership I would suggest the forming of a federation of auxiliary organizations. Were all of the state organizations affiliated with the mother auxiliary, each state would have representation and thus share the responsibilities and duties. Since the greatest need is enlarging the membership, AVMA members are urged to invoke their wives, mothers, and daughters to join the Women's Auxiliary.

RECENT ACTIVITIES

Briefly, what has the Association done this year? The public relations program affected more individual members than any other activity. In addition to the usual press releases, averaging several every month, a series of radio programs was inaugurated. These were intended to reach the grass roots. The scripts emanated from the central office and were broadcast from local stations, which were asked to cooperate. With rare exceptions, local veterinarians broadcast the messages. There are

always mistakes to be expected in any new venture. At the beginning, many of the state associations thought they were to read the scripts received, but that was not the Committee's intention. The scripts were to serve only as a guide for a message suitable to local conditions. In some states, the scripts could be used as written; in others, minor changes were required, while in some instances complete revision was necessary. The idea was to get a message to the public that would aid the farmers to produce and conserve more food for the United Nations. The series met with general approval. The benefits were far-reaching to the national food program of this wartime year. Besides assisting the producer, knowledge of the relationship of veterinary science to public welfare was greatly improved.

Also, once a month a short radio release on animal diseases was prepared for 275 radio stations widely spread geographically. The releases were short sketches convenient for interspersing among news or between programs. Inquiry among farm radio editors revealed that they were regarded as beneficial. "Keep them coming. They are of great benefit to our rural listeners," is one among many expressions of appreciations. While this may seem insignificant, they did make the country veterinary-conscious during the year. Obviously, the time has arrived when veterinary medicine should not "hide its light under a bushel." One of the responsibilities of organized veterinary medicine is to acquaint the public with the work the veterinary service does without sacrificing professional dignity. We have yet to bring about a general realization of what this country would be, if diseases of domestic animals were not kept under a reasonable degree of control. That is the ever-existing duty of all associations—national, state, regional, sectional.

Basically, any good public relations program, to have full effect, depends upon the conduct of the individual veterinarian. He has the responsibility of conducting himself professionally and morally in such a way as to favorably impress his acts upon the community to the credit of his profession. I strongly recommend that all associations strengthen their public relations projects and also that the AVMA continues to assist state and local associations in that respect, as was done this year. State associations should work with the livestock and farm

press by furnishing articles on the control of animal diseases through the proper use of veterinary science. This plan can be made instructive to the livestock industry and beneficial to the veterinary profession. The control of animal diseases requires team work between animal owner and scientist. Each should know what the other is driving at. It seems imperative that veterinary medicine should more thoroughly acquaint the animal-owning public with the problems of disease control, and at the same time study the economic factors involved. It's a two-way road.

I recommend that the public relations service of the AVMA concerns itself in preparing addresses for veterinarians to present at civic clubs, women's clubs, *et al.*, as a means of improving public relations. Many veterinarians do this, but more of them would do so if they had proper assistance and guidance.

Electrical transcriptions could be, and should be, used to advantage. They could be produced by the national association and distributed to the state, regional, and sectional organizations, or even to individual veterinarians for use in radio broadcasting. Small stations welcome such material. Moreover, good use could be made of such transcripts by high school classes in vocational agriculture. Where could authentic information on the health of animals do more good than among the future American farmers? Such knowledge is also brought home to parents.

Motion pictures depicting veterinary medicine at work also would be valuable to lay groups. They could be shown before 4H clubs, high school classes, extension service workers, civic clubs, or even in theaters. The AVMA should renew its efforts to have suitable motion pictures produced for lay distribution. The establishment of a motion picture library in the executive office will, no doubt, assist in achieving that end.

The time has come when the Association should sponsor a layman's journal, such as *Hygeia*. The matter was discussed during my tenure on the Executive Board, and should be revived, at least, after the war.

Federal, state, and municipal regulatory officials should insist that the word "veterinarian" or "veterinary" in the adjective form, replace "inspector." How can the people know that veterinarians participate

in public health work—such as meat and dairy inspection—if they are known only as inspectors? A little thought by public officials would be sufficient to make the correction.

I wish to commend the various commercial firms—the veterinary supply houses and food processors—for the excellent public relations most of them have sponsored. Their influence is far-reaching and undoubtedly does much for the profession and country.

In closing this discussion of public relations, permit me to praise the report of the Committee on Public Relations presented to the House of Representatives. It will be published in one of the post-convention issues of the JOURNAL. I trust everyone will read it.

RECLASSIFICATION OF FEDERAL VETERINARIANS

I am pleased to report that the Association had the opportunity, and did this year forcibly assist in obtaining the approval of Congress to reclassify—upgrade—the veterinarians employed by the United States Department of Agriculture. The action ranks among the all-time achievements of the AVMA, comparable to obtaining commissions for army veterinarians in 1916. The regrading classifies veterinarians on the same level as other scientists of equal educational status. While no one organization could have accomplished this difficult task, the AVMA took the initiative and leading part through its officers, committees, constituent associations, and individual members, and saw the reclassification achieved. In the prosecution of this project, your president obtained the assistance of Hon. Will J. Miller, livestock sanitary commissioner of Kansas. To him, I here publicly express the Association's appreciation of his support and interest in thus establishing a higher rating for veterinarians and a more efficient veterinary service. Residing in the same city as Commissioner Miller, I had the opportunity of collaborating with him and thus correlating the plans of the Association with those of organizations representing the livestock and agricultural interests. And, I wish also, in behalf of the Association, to thank Hon. Andrew F. Schoeppel, the governor of Kansas, for his influence in this cause which

will greatly benefit the nation's livestock industry.

In order for professions and industries to exist and thrive and render the service for which they are best qualified, they must plan for the future. Veterinary medicine is not an exception. The American Veterinary Medical Association has always stood for the advancement of all branches of veterinary science and art, and the economics of their application. To advance, there must be constructive planning; we dare not drift and take the course of least resistance.

We must look up not down,
Look forward not back,
Look out and not in, and
We must all lend a hand.

—EDWARD EVERETT HALE, 1870.

With this thought in mind, your president appointed a committee for constructive planning for the future. It was named the Postwar Planning Committee, although "Planning Committee" would have answered the purpose. Primarily, like everyone else, we are most interested in winning the war, but in addition we are deeply concerned about the operations of veterinary medicine in times of peace.

Constructive planning must be based upon many surveys. But such surveys are tedious, time-consuming, and require patience; they lack the personal appeal and interest required to elicit universal cooperation. The members of the Committee have foresight and a keen interest in the future of veterinary medicine. They have enlisted the aid of many subcommittees and have laid the foundation for expanding the application of veterinary science. To plan systematically, it was necessary to survey the present veterinary profession and to estimate its potentialities. They were mindful of the responsibilities of the Association to the 2,000 or more veterinarians in military service whose personal welfare deserves first consideration, along with their relocation where most needed when peace arrives. Plans for graduate education—refresher courses—for them have been discussed with the colleges. I have been assured by some of the schools that such courses will be established, while others advise that the proposition is being considered. I hope that no school of veterinary medicine will neglect these men.

The Committee surveyed the Veterinary

Corps to determine what the officers themselves were thinking about, in respect to their future. I am advised that this survey has been completed. This alone will better inform the Committee on what type of curriculum the colleges should arrange for the "refresher course."

Rational allocation of veterinary service is likewise significant if the public is to benefit from the specialized training. But, from the standpoint of personal readjustment, the important thing is to know, from statistical studies, whether specified areas have animals of sufficient number and value to support a practitioner. Maps indicating the number of the various classes of animals are on display at this convention. I urge you to examine them. This feature alone shows the immensity of the task the Committee has undertaken—proof that it has not been idle. Inasmuch as this information will be of permanent record at the executive office, it will have to be revised from time to time to serve its purpose. Certainly the facts contained therein will be of incomputable value to the veterinary officer returning to private life. The public, also, will benefit by equitable distribution of the veterinary service.

These are but the main accomplishment of the Committee. To fully accomplish its aims will require the collaboration of the constituent associations and all concerned. Veterinarians everywhere should become sufficiently active in this project to give assistance when called upon to do so. It would be unfortunate if this movement to expand and allocate the veterinary service were not enthusiastically sustained and universally supported. All advancement in veterinary practice must stem from the facts collected, and no agency is in a better position to measure the situation with reasonable accuracy than organized veterinary medicine. Here is an opportunity to render a major service to the nation, and to put the veterinary profession on a footing too solid to dislodge, by the ever-threatening antiscientific movements. It is reasonable to predict that our organizations can develop a uniform use of veterinarians in all branches of the service; in research, education, practice, public health work, and disease control. By careful planning, the different types of practice could be stimulated better to serve the public and thus forever

remove the obstacles under which veterinary medicine labors.

I am obligated to thank each member of the Postwar Planning Committee for his untiring work during the year, and especially Chairman H. L. Foust, of Iowa State College, who, as chairman, had the main load to carry.

Other activities of the year include the difficult task of maintaining (as well as possible) the veterinary personnel for the civilian population by working with the Selective Service and Manpower agencies in Washington; obtaining a clarification of the deferment status of veterinary students when the draft pressure threatened wholesale induction of these men; and the strengthening of relationships between the Association and its constituent associations. The bonds between them, becoming stronger year by year, are examples of what a small profession can do if solidly united and there are important things to be done such, for example, as safeguarding the health of the livestock industry. Time does not permit recounting the other projects carried out during the year. However, if any of you are not familiar with what the Association is actually doing for you as a veterinarian, whatever may be your particular status, I urge you to pay a visit to the office of the executive secretary and his staff, and see the tremendous amount of work accomplished in the interest of veterinary medicine.

PRACTITIONERS

At this point, I wish to speak about ourselves—the practitioners—a pleasing subject if one confines oneself to their good qualities. As practitioners—including myself—our stock in trade is our conduct and our knowledge. How we display these means the difference between success and failure for ourselves and for the profession. Our conduct, our knowledge, and our skill make up the yardstick by which the public measures the worthiness of our profession. We must realize that we are, in effect, servants of the state as are all altruistic professions. We are educated by the state and licensed by the state and our duties are to preserve essential property and public health. One of our faults is stressing too greatly our personal affairs in which the public has no interest. Our fami-

lies and our future will be provided for if we serve our communities well. On the contrary, incomes will ever be precarious if we are careless in our work, our attire, our equipment, and our knowledge. Well-planned clean surgery, modern preventive and curative therapeutics, keeping abreast of the times, and four-square treatment of our clients, are among the attributes we practitioners owe to our profession and country. These are the surest ways to stamp out the incompetent systems of veterinary medicine that hamper legitimate practice. Among many, one might cite the vaccination of hogs as an example to illustrate. The duty of the veterinarian is to thoroughly service swine herds preceding vaccination, to serve more time in the hog lot, keenly observing the problem through professional eyes, using knowledge gained from autopsies and laboratory findings and, when fitness to vaccination is established, prove that handling the syringe is but a minor part of our service. It will pay big dividends and, on the long run, establish confidence in the service rendered.

Veterinarians of the more useful type "sell" more animal health and fewer animal cures. They write prescriptions in terms of management, sanitation, nutrition, and breeding; while they regard chemo- and biological therapy important, there are other factors considered and corrected in obtaining maximum benefits and enduring respect. Refinements must extend to the office, clinics and hospital for these reflect the quality of treatment your patients receive. Over-worked practitioners, these wartime days, may sometimes find it impossible to avoid short cuts but, in ordinary times, there is less excuse for leaving one's work open to criticism, for not reading new books, journals, and attending association meetings. In short, "practice what you preach," remembering that "The body is the shell of the soul, and dress the husk of the shell; but the husk often tells what the kernel is. The consciousness of clean clothes is in and of itself a source of moral strength, second only to a clean conscience."

The aim should be to give a complete service to one's community even though it may involve work one doesn't happen to like. In addition, whether you like "paper work" or not, it is good business to keep records of cases. Establish a system of keep-

ing records, and do not delegate important technical work to lay employees other than technicians, nurses, orderlies, or general helpers working under one's directions. You may be making empirics who will haunt the profession for years, pretending they are veterinarians. Paragraph 30 of the *Code of Ethics* covers this point, and moreover, the practice is a violation of licensure laws.

REGULATORY OFFICIALS

In the interest of better disease control, I would like to see more coöperation between practitioners and regulatory officials: federal, state, municipal. While such team work exists in some states, the custom should be more general. As Professor Leclainche told the 12th International Congress in New York, "No one is as familiar with the disease problem of a farm as the practitioner in regular attendance." The doctor-patient relationship should not be separated from regulatory work, and his interest in the health of the livestock of his community is close and personal. I do not imply that regulatory officials should be abolished, but believe that they should serve more in a supervisory, administrative, or consultative capacity and leave the actual work to the local practitioner. This, in my opinion, would improve regulatory work, increase its extent, reduce costs. The claims that practitioners are not regulatory minded is questionable since, where such coöperation exists, disease control is on a higher plane. Give the practitioners a chance, train them, advise them, supervise, and encourage them, instead of curtailing their source of livelihood. The rushing into a community to do regulatory work without even paying the local practitioner a visit is a strain on professional ethics. It's no wonder some practitioners are careless in reporting infectious diseases. Under a coöperative setup, the contrary would be true. Veterinarians accredited by the federal government and approved by the state through examination could be made to take a great pride and interest in their status and their work were they, in effect, custodians of animal health in their communities. I am sure that if more of the regulatory officials would work to the end of achieving collaboration they would find that practitioners would become proficient livestock sanitarians and faithful policemen. They would take interest in reporting infectious

diseases and most assuredly would detect more outbreaks in their early stages and stamp them out at a great saving to the American people. Furthermore, the practicing group would have more consultative and diagnostic assistance and, at the same time, render a much more valuable service to the livestock industry than they now do, granted that the state provides the necessary laboratory facilities and adequate supervision. With such a state-federal system many more thousands of animals would be saved and fewer would be condemned at the abattoir, which represent to the producers gigantic annual losses. I, therefore, recommend that a committee be appointed to confer with the proper federal and state authorities of the United States, the Dominion of Canada, and the Republic of Mexico, to work out a consistent plan of regulatory veterinary medicine. Such conferences would lead to greater efficiency and better relations among the different branches of veterinary medicine.

EDUCATION

Education is the fountainhead of the profession. To develop the veterinary service and expand its usefulness and scope, the educational system must lead, keep in stride, and set the pace. Although there have been many improvements inaugurated through the years, many more will be needed in the future if the public's demands are to be fulfilled. Education should not be permitted to get into a rut. The history of the American Veterinary Medical Association teems with evidence of its leadership in this connection, and it must not cease to dictate the educational standards, for, therein lies the foundation of the veterinary service. It is not my province as a practitioner to promulgate directives to the deans, but as president of the Association I may be pardoned for pointing out what twenty-six years of experience in practice and observations among my colleagues have taught; and veterinarians in the field should know the type of service the public expects and, therefore, the kind of training students require. I am in full accord with the belief of all educators in the field of medicine—that neither the basic nor medical sciences should be neglected in any degree whatsoever. But, I am equally in accord with my colleagues who believe that an internship should be required to round

out a veterinary education, if the time factor does not permit adequate clinical training at the college. I trust that the heads of schools will not misconstrue this criticism. It is as old as veterinary education itself but bears repetition, because there is quite a difference between a recent graduate and a capable practitioner, according to my personal observation. Perhaps, a new setup in the Committee on Education would improve matters. The various branches of veterinary medicine should be represented—thereby, being more capable of making recommendations in behalf of each branch.

I have no apprehension of the schools being unable to obtain a sufficient number of students after the war. The number of well-qualified applicants is more likely to over-crowd the facilities of the present colleges. Should that be true, it behooves the colleges to prepare for increased enrollment without lowering their standards. While there are two schools of thought in regard to the number of veterinarians needed, I contend that the country must have more graduates than the colleges are providing, particularly in the face of the proposed expansion of the veterinary service. Expanding the service and supplying men to fill the new places must go hand in hand. Nothing could lead deeper and deeper into incompetent veterinary service—quackery—than to create openings for nonexistent graduates.

Moreover, the responsibility of the colleges should not end at graduation. It seems reasonable to suggest that facilities be provided for graduate work (not necessarily leading to a degree). From my personal perspective, I feel that no veterinarian should practice more than ten years without taking graduate work, and I hope that suitable courses will be provided.

Your attention is called to the precarious position of veterinary education caused by the deferment policies of the Selective Service and Manpower officials, whereby, after July 1, 1944, there is to be no deferment for preveterinary students, which stops abruptly the next year's classes except for physically deficient men. This will greatly hamper the veterinary service, the livestock industry, and the national welfare. Even though hostilities ended soon, veterinarians retiring on account of age would leave the number inadequate. These facts have been hard to impress upon certain high officials

who believe that all physically fit young men should be inducted into the armed forces.

COMMERCIAL FIRMS

The firms supplying veterinarians with biological and pharmaceutical products are, as a whole, of high type. They aim to furnish products based upon research and field trials. But there is room for improvement. Pharmacy shelves crowded with outdated specialties indicate that many products are sold without proof of their usefulness. Some of the fault is due to practitioners not keeping records and not keeping up-to-date on the progress of pharmacology. Furthermore, some supply houses are prone to make use of pharmaceuticals intended for human use, and not adapted for animals. Here again, competent field tests would limit the use of such drugs. A majority of these firms adhere to the basic principles of therapeutics that their products should be used only by medically trained men, contrary to the short-sighted policy of encouraging anyone to dispense their products. Drug and biological products, regardless of quality or proved usefulness, cannot give maximum results in untrained hands and may even be harmful. It matters little where such products are sold but it matters a great deal by whom they are used. The makers of surgical instruments do not teach surgical technique in order to stimulate sales, knowing that only the trained surgeon should use them, while the makers of drug and biological products often go to great lengths to instruct the merchant on their use and thus violate the principles of medicine. Is the welfare of the livestock industry the chief concern of these manufacturers and distributors, or is it commercial exploitation, disregarding sound principles of livestock disease control, and completely ignoring the nation's continual pleas for food conservation? Can it be that they are blinded by selfishness to the principles of the American veterinary system and for what it stands, and that their motives are subversive?

I hope that what I have said under the different headings of this address will not be misconstrued. The intention is to be helpful to our veterinary service. Organized veterinary medicine is depended upon to correct the faults and to solve the problems we face. For this reason, all veter-

inarians should participate in the work of the associations and endeavor to enlarge the membership roll. While the membership of the AVMA has reached the high mark of 8,200 members, there are still too many nonmembers.

FURTHER RECOMMENDATIONS

Veterinary medicine is surely embarking upon a new era and it challenges each succeeding president to guide its destiny in a short tenure of twelve months. I, therefore, recommend that the administrative By-Laws be amended so that the out-going presidents be retained on the Board of Governors for another year in order that he may be able to aid in carrying out his plans.

I also recommend that the convention zones be changed to incorporate the Republic of Mexico in zone 3.

The veterinarian must be a man of wide attainment: physician, surgeon, sanitarian, obstetrician, pediatricist, radiologist, pharmacist, and not only cover the whole gamut of body organs, but also, be all these in a large number of animal species of all ages and conditions of servitude.

For many years human medicine has given recognition to outstanding men of various fields by citing them as Fellows of the American College of Physicians or Fellow of the American College of Surgeons. A similar arrangement in veterinary medicine is worth a thought, although the system used in human medicine may seem impossible. The need, however, exists and I recommend that the incoming president devote some attention to so laudable a project.

I have great faith in veterinary medicine. It is still young but past adolescence—past the age of quarreling among its different branches and allied groups. We have matured to the point where we sit around the conference table and iron out our differences, and we are arriving at common conclusions. The evidence of maturity signifies the strength and affluence needed to mould the profession's future.

Evolution is going on everywhere. Veterinary medicine is not an exception. "No man has a right to be as ignorant, as sinful, or as shiftless as he was a year ago. The law of life is the law of growth. We either go forward or backward. The road forward is uphill and hard to travel, but the higher the hill the finer the view. Keep

going up—up beyond the petty things, beyond the tiny things, ignoring and forgiving with hearts too big to cherish hatred and malice and with souls that search the heavens for their inspiration."

Award for Animal Disease Study

A new national award for the person conducting the year's most outstanding research on dairy cattle diseases, and carrying with it \$1,000 and a commemorative gold medal, is announced by the American Veterinary Medical Association. Funds for the annual award for both 1944 and 1945 have been presented by a leading organization in the dairy industry.

In announcing plans for the award, veterinary officials said that dairy cattle dis-

eases are costing the nation millions in reduced food production, and reduced farm income. "Two diseases alone—brucellosis and mastitis—are causing losses of more than \$50,000,000 per year," Dr. J. G. Hardenbergh, executive secretary of the association, said.

There is a place for a similar award in tackling the little understood and costly swine diseases. It would be a grand investment if the country could pay five million and get a sure necro preventive.—*Clipped from the Omaha Daily Journal Stockman by Dr. W. T. Spencer.*

BUY ANOTHER BOND

Among Our Confederates in the Fight for Freedom



—From the Indian Veterinary Journal

Group photograph taken at the third annual conference of the Ceylon Veterinary Association, December, 1943.

Seated.—Hector C. Perera, G.V.Sc., secretary; D. Seneviratne, G.B.V.C., M.V.S., Kandy; T. M. Z. Mahamooth, G.B.V.C., M.R.C.V.S., veterinary research officer; R. J. Little, M.R.C.V.S., D.V.H., president; Sir L. W. A. de Soya; M. Crawford, M.R.C.V.S., government veterinary surgeon; G. B. De Silva, G.B.V.C., Acting government veterinary surgeon; Major Trevellen, M.R.C.V.S., Royal Army Veterinary Corps; J. Habaragoda, G.B.V.C., J.P., manager government dairy; L. A. P. Babapulle, B.Sc., M.R.C.V.S., D.T.V.M., treasurer.

Standing.—Lt. M. Lawrence, G.B.V.C.; J. C. A. Prins, G.V.Sc.; L. P. P. Goonetilleke, G.B.V.C.; Eric P. A. Fernando, G.B.V.C. Asso. L.D.I.; C. Dias, G.B.V.C.; W. Witharana, G.B.V.C.; K. Thurasingham, G.B.V.C.; D. A. Amerasinghe, G.V.Sc.; T. de Silva, G.V.Sc.; C. P. Pillai, G.V.Sc.; S. Saravanamuttu, G.B.V.C.; E. F. Edirisinghe, G.V.Sc.

Animals in the War



Present Livestock Holdings

An actual increase in livestock holdings on American farms as of Jan. 1, 1944, despite a record slaughter during the preceding year is one of the marvels of this period. The estimated number of cattle, the first of the year was 82,192,000, or 4 per cent over the corresponding date of 1943. The hog population on January 1, was 83,756,000, or an increase of 14 per cent over the year before. Sheep and lambs, however, declined 7 per cent. The

holdings given in the USDA report as of January 1, were 51,718,000 as compared with 55,775,000 on Jan. 1, 1943. The belief expressed is that the peak has been reached as livestock production has caught up with the feed supply. All surplus grain has been used up.

The number and the value of the livestock in the United States as of Jan. 1, 1944, reported by the USDA were as follows:

CLASS OF LIVESTOCK	NUMBER ON FARMS JAN. 1				FARM VALUE PER HEAD JAN. 1			
	AVERAGE 1933-42	1942	1943	1944	AVERAGE 1933-42	1942	1943	1944
		THOUSAND HEAD				DOLLARS		
Horses	11,133	9,907	9,675	9,330	77.95	64.75	79.96	78.66
Mules	4,409	3,813	3,704	3,559	106.56	107.51	127.56	143.33
Cattle	69,354	75,162	79,114	82,192	33.98	55.08	69.56	68.72
Milk Cows	25,466	26,398	27,106	27,607	49.24	77.89	99.52	102.02
Sheep	52,669	56,735	55,775	51,718	5.69	8.61	9.68	8.73
Hogs	51,616	60,377	73,736	83,756	9.34	15.62	22.53	17.57
Chickens	424,011	474,910	540,798	572,460	.637	.832	1.037	1.172
Turkeys	6,678	7,623	6,704	7,520	2.25	3.08	4.46	5.29

TOTAL FARM VALUE JANUARY 1

CLASS OF LIVESTOCK	AVERAGE 1933-42	1942	1943	1944
	THOUSAND DOLLARS			
Horses	867,328	641,520	773,609	733,911
Mules	464,690	409,929	472,481	510,122
Cattle	2,358,630	4,140,256	5,502,802	5,647,875
Milk Cows	1,249,750	2,056,148	2,697,652	2,816,357
Sheep	300,682	488,468	539,650	451,267
Hogs	473,806	942,931	1,661,215	1,471,753
Chickens	270,113	395,042	561,027	670,809
Turkeys	15,022	23,487	29,897	39,806
Aggregate 5 species*	4,465,136	6,623,104	8,949,757	8,814,928
Aggregate 7 species†	4,750,271	7,041,633	9,540,681	9,525,543

*Includes horses, mules, cattle, sheep and hogs.

†Includes horses, mules, cattle, sheep, hogs, chickens and turkeys.

Legends for Pictures on Opposite Page

Fig. 1—Lead mule pulling pack in tandem during try-out in New Guinea.

Fig. 2—Sick horse in Australia was given mineral oil through stomach tube. Veterinarian assisted by two enlisted men perform the operation. Left to right: Pvt. Vernon Throbridge of Lexington, Ky., Lt. Ladd N. Loomis (veterinarian), Detroit, Mich., and Sgt. Lewis E. Allen, Danton City, Wash.

Fig. 3—Pvt. Robert E. Steinmetz, Pittsburgh, has his own private pack mule for hauling supplies of food and ammunition to his buddies on the front line in the mountains of Italy. Steinmetz found the mule on an Italian farm, more dead than alive, and bought it for \$5.00. He treated the animal's feet, fed and doctored it for a week or two, and now has what he boasts is the hardest working and most faithful mule on the pack trail. And "Red", which is now the mule's name, won't work for any soldier but Steinmetz.

Fig. 4—Mule pack train on the march up the Ledo Road, Burma.

Fig. 5—A horse in Australia, loaded with the cradle part of a 75 mm. pack howitzer gun. Gun is broken down into six component parts, each of which is carried by a separate horse.

Fig. 6—Home on the range in Italy—When mechanized equipment bogs down in the heavy mud caused by incessant rains, the horse and mule become an invaluable cog in the military machine. The U. S. Army in Italy uses pack animals for the transportation of supplies and equipment over terrain that would be difficult or impossible for motorized vehicles. Loading food rations on a pack animal in the Galla Sector, Italy, are Pvt. Johnny H. Cox, Swainsboro, Ga., and Pvt. Raymond A. Brockman, Knifley, Ky.

Report on a Type of Rhinitis in Swine

L. P. DOYLE, B.S.A., M.S., D.V.M., PhD., C. R. DONHAM, D.V.M., M.S., and
L. M. HUTCHINGS, B.S., D.V.M., M.S.

Lafayette, Indiana

DURING the past three years, we have seen a dystrophic rhinitis in five herds of swine in as many widely separated sections of Indiana. Reports of what appear to be the same disease have come to us from several other herds. The disease is said to have been seen in one small area in Indiana for the past twenty to twenty-five years. It

ing into the air in an apparent effort to clear the nose. Occasionally, in some cases there is marked epistaxis accompanied by a pushing of the snout against or into the ground. There is sometimes vigorous rubbing of the snout against posts or other objects. A discharge of bloody or other material usually accompanies violent sneezing.



Fig. 1—Distortion of the snout is a conspicuous symptom in some cases.

has been of great economic importance in the affected herds but has not yet become widely prevalent in the state.

The most conspicuous symptom in some affected animals is a distortion of the snout (*see, fig. 1*). In many cases, the snout is turned upward giving the pig a dish-faced appearance. In other cases, the snout is turned to the side, either the right or left. In still others, the snout has a pushed-in appearance, causing the nose to be short and wrinkled. Another prominent symptom is sneezing. Affected swine often sneeze violently and in rapid succession. This symptom is usually more noticeable immediately after the pigs have been roused from rest. Sometimes, sneezing is accompanied by vigorous actions, including jump-

In our experience with this disease, its chief economic importance resulted from interference with the normal rate of growth and development of shoats. The loss from stunting of the pigs (*see fig. 2*) may be great enough to force the owner out of the hog business.

In one herd, the disease was observed in pigs while they were still nursing. In this herd, there was definite evidence of the disease in older shoats as well as in the brood sows and boars. In another herd, the evidence indicated that the disease had spread from the hogs on the farm to a group of shoats which had been purchased from several different sources immediately after weaning and placed in pens with affected animals. In another herd of over 200 hogs, the incidence and importance of the disease had increased during a period of three years with the result that more

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than half of the shoats and many of the breeding animals were visibly affected at the end of the third year.

On postmortem examination, the lesions, in addition to bone distortion and atrophy,

The experience which swine growers have had with the disease discussed here suggests that it will be wise to take precautions to prevent its spread.

Since it appears to be difficult or impos-

Fig. 2—Retarded growth or stunting is an important effect of the disease. This shoat was less than one-half the size it should have been. The snout is bent markedly to the right.



consisted mainly of chronic inflammation of the nasal mucosa with some necrosis and accumulation of bloody and/or purulent exudate in the nasal and paranasal cavities. In the few pigs which died or were killed when near death, abscesses and necrotic areas were observed in the lungs.

This type of rhinitis in this country has been previously reported. The clinical and pathologic aspects of the disease are somewhat suggestive of the chronic atrophic rhinitis which has been described in Europe, and studied, particularly, by Jensen. The European disease is said to have been of major importance in some countries. As yet, there is probably no means of quickly establishing a relationship between the disease described here and the one observed in Europe.

Previous reports of rhinitis in swine have not always made such distinction between atrophic or dystrophic rhinitis and ordinary "bull nose." There is not much reason to doubt that these two conditions are separate and distinct. "Bull nose" is characterized by the presence of granulomatous swelling, usually with more or less necrosis in the central portion of the swelling. There is rarely any distortion of the snout other than what results from the swelling.

sible to eradicate the disease without getting rid of all of the visibly affected and exposed hogs, complete hog depopulation is often advisable. It is also well to put the healthy hogs on clean ground when a new start is made.

Chinese vs. American Hogs

Native Chinese hogs, of which there are many types, have outstanding prolificacy, farrow large litters which they mother well, have a high rate of survival, and at weaning time have more body weight than the average American breeds, according to a report (July 14) issued by Ralph W. Phillips of the U. S. Department of Agriculture and T. Y. Tsu, of the Chinese Ministry of Agriculture. The release records an observation of a Chinese sow that had 32 teats and a litter of 25 pigs. Mention is made of the fact that Chinese sows mature sexually at an earlier age than British and American breeds. The gilts are usually bred at five months and generally Chinese sows farrow their first litter at six months. On an average, however, Chinese hogs weigh one-fifth less at maturity and grow slower than the Occidental breeds.

The Effect of Phenothiazine on Horses

LEONARD E. SWANSON, B.S., D.V.M.

Gainesville, Florida

MANY WORKERS in the United States, Canada, and England have reported on the efficacy, dosage, and toxicity of phenothiazine for horses and mules. These reports show considerable variation in the toxicity of various dosages of this drug. The following report concerns the treatment of 68 horses with small doses of phenothiazine mixed with feed and the resultant effect upon the volume of packed red blood cells and parasite egg count of the feces.

EXPERIMENTAL DATA

Materials and Methods.—The horses used in this test were stable-fed, except for a short time during the summer when they were pastured. They were given feeds purchased in the South and Southwest, and had access to salt (sodium chloride), but no other minerals, when in the stables. The hair coat and general appearance of the animals suggested heavy parasitism. Fecal examinations of several animals revealed a heavy parasitic burden.

Each of 65 animals were given 30 Gm. of phenothiazine mixed with 2 qt. of wet oats after feed had been withheld for eighteen hours. Three private mounts received 50 Gm. of phenothiazine in the same manner.

Parasite egg counts were made according to the technique of Stoll.¹ The fecal sample was taken directly from the rectum of the horse. After being mixed thoroughly, a 10-Gm. sample was weighed, and placed in a flask containing 300 cc. of tap water. The feces was suspended by agitation, and allowed to stand in a refrigerator (10 C.) for twenty-four hours. Then the sample was strained through a tea strainer to remove the coarse particles, poured back into the flask, and thoroughly shaken to obtain an even suspension of the fecal material. While the material was being agitated, 10 cc. were poured into a centrifuge tube. After being centrifuged at 2,000 revolutions per minute for five minutes, the supernatant fluid was decanted. Saturated salt solution was added to the tube and the sample agitated until all ma-

terials were in suspension. The fluid was then poured into a sputum vial and sufficient saturated salt solution added to fill the vial completely. A cover slip was placed over the vial which was allowed to stand for fifteen minutes, after that time it was removed carefully, placed on a microscopic slide, and examined for parasite ova. The number of eggs per Gm. of feces was calculated.

The volume of packed red blood cells was determined by the Wintrobe hematocrit method. Blood and fecal samples were taken immediately before treatment and on the seventh, fifteenth, and fifty-fourth days after treatment.

Two of the animals were destroyed twenty-five days after treatment and examined for parasites. The stomach, small intestine, large colon, and small colon were ligated separately, removed, and placed on a large canvas. Each part was opened and the contents, together with any adhering worms, were placed in large buckets and measured. The contents were mixed thoroughly and one tenth of the entire sample was taken to the laboratory for examination. After being passed through large 10- and 20-mesh screens, all parasites found were identified.

RESULTS

The horses were offered the medicated feed in their individual feed boxes at 1:00 p.m. All except 10 had consumed it by 3:00 p.m. These latter animals had not consumed the feed at 11:00 p.m. the following day. Two handfuls of wet bran were added and stirred thoroughly. The mixture was consumed immediately. The three animals given 50-Gm. doses of phenothiazine ate the feed readily.

The results obtained by the administration of phenothiazine (regular) with feed to 68 horses are summarized in table 1. Doses of 30 Gm. (approximately 0.06 Gm. per kilogram of body weight) were effective in removing *Strongylus* spp. from these animals. Forty-five of the 65 horses treated with 30-Gm. doses in feed were found to be negative by fecal test on the seventh day. Thirty-three were negative on the fifteenth day following treatment. The highest count of *Strongylus* spp. ova was 15 per Gm. of feces, whereas, in most positive cases the count was only 3 to 6 ova per Gm.

The efficacy of the 50-Gm. dose of pheno-

Conducted in cooperation with the Artillery Unit, Reserve Officers Training Corps, University of Florida.

Parasitologist, Florida Experiment Station, now in Armed Service.

The phenothiazine used was the regular product in bulk manufactured by E. I. Dupont de Nemours Co., Wilmington, Delaware.

¹Stoll, N. R.: On the Methods of Counting Nematode Ova in Sheep Dung. *Parasitol*, 22, (1930): 116-36.

TABLE I—Results Obtained with 30- and 50-Gm. Doses of Phenothiazine (Regular) Administered with Feed to 68 Horses Following an Eighteen-Hour Fast.

NO. OF ANIMALS	DOSAGE	TIME OF EXAMINATION	VOLUME OF RED BLOOD CELLS	EGGS PER GM. OF FECES
65	30 Gm.		Average (%)	Average count
		Before treatment	37.95	849.6
		7th day after treatment	32.45	5.4*
		15th day after treatment	34.23	6.4†
		54th day after treatment	39.14	..
3	50 Gm.	Before treatment	35.53	493.0
		7th day after treatment	30.86	2.0‡
		15th day after treatment	34.0	2.0‡
		54th day after treatment	35.53	..

*Eggs were detected in feces of only 20 horses.

†Eggs were detected in feces of only 32 horses.

‡Eggs were detected in feces of only one horse.

§Eggs were detected in feces of only two horses.

thiazine as determined by the fecal egg count was not superior to that of the 30-Gm. dose.

No unusual reactions or symptoms were observed in these horses following treatment. They were worked the third day after treatment and the officers in charge observed that they appeared more alert than prior to treatment. The stools appeared normal. By the fifty-fourth day, many of the animals had gained weight, the hair coats were brighter, and the general appearance of the entire group was noticeably improved.

The treatment apparently was ineffective in removing bots, *Gastrophylus* spp. ova of stomach worms. *Habronema* spp. were noted but in most cases were few in number and not included in this study. Feces from 9 horses contained pinworms, *Oxyuris* spp., before and after treatment.

In most instances, there was a slight decrease in the volume of packed red blood cells on the seventh day following treatment. This decrease also was noted in some horses on the fifteenth day; however, the volume of packed red blood cells was equal or higher on the fifty-fourth day than before treatment. The decrease in the red blood cells could not be considered serious in any instance.

Necropsy of horse 64P revealed 22 bots, *Gastrophylus* spp., in the second and third stages, 20 *Strongylus endentatus*, and 2 stomach worms, *Habronema muscae*. Horse 23P on necropsy had 25 bots in the second and third stages, 1 dead *S. endentatus*, 10 *Oxyuris equi*, and 1 *H. muscae*. These find-

ings check closely with the fecal examinations for parasite ova of these 2 horses.

SUMMARY

Thirty Gm. of phenothiazine mixed with oats and given after feed had been withheld for eighteen hours was found to be highly efficient in removing *Strongylus* spp. from 65 mature, well-groomed horses of various ages. Fifty-Gm. doses given to each of 3 animals was not superior in this respect to the smaller dosage.

A slight decrease in the volume of packed red blood cells was observed on the seventh day following treatment. Complete recovery of the percentage of packed cells occurred in all animals by the fifty-fourth day. Recovery was more rapid in some animals than others.

Poultry Improvement Plan Makes Gains

The National Poultry Improvement Plan, which was put in high gear last year and helped to produce a poultry and egg crop that overwhelmed both the gastronomic and storage capacities of the country, has been augmented by an increase of 249 hatcheries operating under the Plan, meaning that there have been 50 million more eggs hatched this season. In the increment are 232 hatcheries qualified to produce U. S. Approved chicks, and 26 of these to produce U. S. Certified chicks—the highest grade. Pullorum disease control in hatchery flocks more nearly approached completeness this year, and the number of states participating increased from 44 to 45, when Pennsylvania began cooperating in January.

Animals in the War



—U. S. Army Signal Corps

The Holstein-Friesian

The white and black milk cows that decorate so many American hillsides and stanchions represent a romance of American farming. Although the name—Holstein-Friesian—is derived from the so-called low countries of Continental Europe, the breed was actually developed in the United States—to be exact in New England where the office of the Holstein-Friesian Association of America has remained since organized in 1885. The membership reached the new high record of 33,546 in 1943, a net gain of 975 members from 44 states for the year.

Since its organization, the Association has registered 3,320,869 animals, of which 890,111 were males. The registrations for 1943 were 111,197 head, a gain of 4.3 per cent over 1942. A revealing sidelight on the dairy cow and milk situation is shown in the following table:

TABLE 1

	H-F ¹	Other Cows ²	Milk Prices ³
1939	\$152.25	\$ 58.60	\$1.68
1940	173.25	61.00	1.82
1941	185.40	71.70	2.18
1942	223.62	89.70	2.57
1943	343.27	114.00	3.14

¹Average price of purebred Holstein-Friesians, at auction sales, all ages.

²Average price of other cows in the U. S. A.

³Average price of milk per cwt.

The figures show that the sale price of Holstein-Friesians has risen 125 per cent since 1938, other cows, 94 per cent, and milk at wholesale, 87 per cent.

From Report of Officers and Committees for the Fiscal Year, 1943, Holstein-Friesian Association of America.

As indicated by H-F registrations for 1943, the following nine states, in the order listed, are the principal dairy states:

TABLE 2

New York	23,691
Wisconsin	17,129
Pennsylvania	11,164
Michigan	7,640
Ohio	7,234
Illinois	6,918
Minnesota	6,481
Iowa	4,790

The registrations for California were 2,419 and for Indiana, 2,254. Of the 48 states, 18 registered more than 1,000 head. The states showing a purebred Holstein-Friesian registration of more than 1,000 and less than 2,000 were:

TABLE 3

Maryland	1,873
Washington	1,735
Kansas	1,679
Vermont	1,372
New Jersey	1,309
Massachusetts	1,100
New Hampshire	1,004

Because of the popularity of the smaller breeds in the South, the registrations for that section are low. Only 2 purebred Holsteins were registered in Florida in 1943. The Florida average since 1937 is 23 head per year.

The barometer of demand for dairy cows is indicated in the transfers (sales) of

Legends for Pictures on Opposite Page

Fig. 7—Men of a Paratroop Battalion take their machine guns apart before loading them on pack mules. The pack mules carry the guns and ammunition up the mountain passes, in the vicinity of Venafro, Italy.

Fig. 8—Sgt. Bruce Eather of Tallangatta, Victoria, Australia, member of a Jungle Combat School, somewhere in Australia, packs a horse without the aid of a horse harness, using only the normal amount of equipment issued each man. Here he hangs a box of .303 ammunition on the horse.

Fig. 9—A filly, the only one born to U. S. Army in Australia, receives medical attention from a veterinarian assisted by enlisted men.

Fig. 10—Men and horses, completely rigged for action, are shown crossing a stream somewhere in Australia, during one of their field problems. These horses carry 75 mm. pack howitzers which are broken up into six component parts, as well as all other supplies such as food and ammunition.

Fig. 11—More men and horses in Australia cross a stream during one of their seven day problems in nearby country. Horses carry 75 mm. pack howitzers.

Fig. 12—Even an Army mule finds use for a G.I. helmet in grabbing a bite before leaving Sicily for Italy.

TABLE 4

1937	43,574
1938	43,885
1939	40,873
1940	51,414
1941	58,412
1942	65,807
1943	73,574

registered Holstein-Friesians throughout the United States during the years shown:

New buyers—15,577 of them—account for the increase in sales during 1943, obviously due to wartime demand for milk.

That purebred cows are registered to sell or to create demands for their offspring is indicated by the ratio of registrations in three of the principal dairy states:

TABLE 5

	REGISTRATION	SALES
NEW YORK		
1937	17,215	9,348
1938	17,244	8,247
1939	17,321	7,674
1940	31,217	10,381
1941	19,883	11,069
1942	22,161	13,314
1943	23,691	16,822
WISCONSIN		
1937	13,267	6,581
1938	13,290	7,236
1939	13,835	6,702
1940	24,470	8,125
1941	16,288	8,920
1942	16,991	9,799
1943	17,129	10,523
PENNSYLVANIA		
1937	7,060	3,420
1938	7,922	4,150
1939	7,456	3,399
1940	13,239	4,716
1941	9,754	5,411
1942	10,463	6,614
1943	11,164	7,768

The highest producing Holstein-Friesian for the year was *Carnation Homestead Inka Mutual*, owned by Carnation Milk Farms, Seattle, Wash. She was 7 years, 8 months and 22 days old at the end of the test. Her record was 34,680.9 lb. of milk (3.8% fat) containing 1,333.8 lb. of butterfat. Fourteen other cows of the breed exceeded the 1,000 lb. limit; among them was *Cornell Ollie Catherine* of the Cornell University

herd which yielded 26,630.8 lb. of milk (3.8% fat containing 1,024.2 lb. of butterfat).

Of greater importance from the practical viewpoint are the 32 herds which yielded more than 500 lb. of butterfat per head for the test year. Among these herds are those of the University of Nebraska (587.2 lb.), Pennsylvania State College (537.9 lb.), Montana State College (526.6 lb.), and the University of Maine (500.5 lb.). Extremely fascinating is the fact that a high incidence of tuberculosis in this class of dairy herd prevailed before the advent of bovine tuberculosis eradication (see, J.A.V.M.A., Dec. 1942).

The momentum of artificial insemination is indicated by the increases in the applications for the registration of animals thus produced: 1,976 in 1941, 4,180 in 1942, and 12,094 in 1943, or nearly three times as many as in 1942. The gain from 1941 to and including 1943 was 512 per cent. Artificial insemination is admitted to afford a means of improving the breed but, quoting, "it imposes heavy responsibilities . . . as there are plenty of chances of making mistakes." Typing of blood as a protection is in the offing. The Genetics Laboratory of the University of Wisconsin has furnished an accurate method of checking parentage, if sire and dam are available so that blood samples may be obtained.

The Noisy Abdomen

Especially in large animals, the abdomen is a noisy place. The intestinal tract at work, chasing fluids, semifluids, and solids along its winding pathways, makes sounds that, so far as we know, have yet to be differentiated for diagnostic purposes, although every tingle, every flush, and every gush one hears must be the voice of some particular condition. That is to say, the intonations and the sites of borborygmus remain to be identified with definite states of the digestive tube, as is done in diagnosing the abdominal catastrophes of the human being. The character of sounds or their absence at different parts of the long intestinal tract of animals must be more significant in differential diagnosis than veterinary literature indicates.

Salmonella Enteritidis Infection with Leg Deformity in Turkeys

An unusual type of hock disorder in a flock of 900 turkeys approximately 24 weeks old was observed in about 100 of them. The deformity was too pronounced to

incriminated *Salmonella pullorum* as the cause of tarsitis in chicks, and Brunett (1930) described joint lesions in paratyphoid of pigeons. Jungherr (1933) attributed a similar condition in turkeys to staphylococci, and (1938) Henning and Clark isolated *Salmonella typhi-murium* in cases of joint ill of colts.

In the present outbreak, the mortality



Fig. 1—X-ray (left) and photograph of an infected leg. Note the abnormality at the distal end of the tibia in the x-ray picture.

market the turkeys in the usual manner. The condition differed from the hock disorder occurring mainly in males of certain strains at a later period of growth, which Freyberg of the Rackham Arthritis Research Unit, University of Michigan, described as a noninfectious form of epiphysitis and periosteitis. The present cases were of an inflammatory nature, showing heat, swelling, and impaired locomotion with rounded deformation of the hocks, purulent exudation in the tendo-Achilles, and tumefaction of the proximal end of the metatarsus, at which place the epiphyseal cartilage was thick and the underlying diaphysis roughened. The x-ray pictures show the nature of the condition—epiphysitis.

An organism which Edwards of the University of Kentucky identified as *Salmonella enteritidis* was isolated from the circulating blood and from local purulent exudates. Durant, University of Missouri,

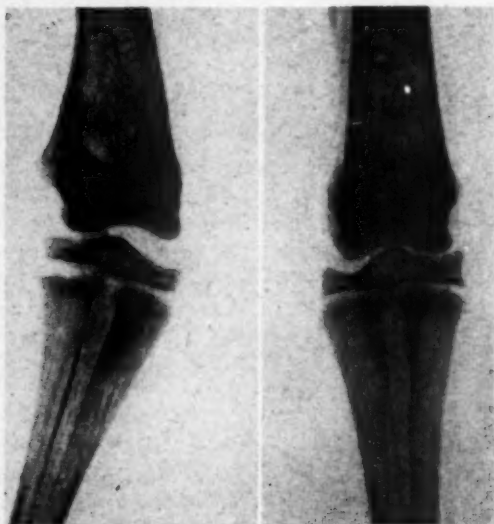


Fig. 2—X-ray picture of a normal joint (right). The epiphysitis is shown in the left picture. Lateral pressure was used to expose luxation of the tibio-metatarsal articulation.

being low, the condition might have been overlooked but for the tarsal deformations. —W. A. Higgins, J. B. Christiansen and C. H. Schroeder, General Mills Larro Research Farm, Detroit, Mich.: *A Salmonella Enteritidis Infection Associated with Leg Deformity in Turkeys*. *Poultry Sci.* 23, (July 1944): 340-341.

You can't tell how deep the ocean is with a barrel gauge nor measure the distance to the moon with a yardstick, but you can tell precisely who'll win this war by the number of War Bonds you buy.

A Veterinary Economic Survey

EDWIN J. FRICK, D.V.M., and D. ROSS HANEY, B.S.A.

Manhattan, Kansas

THIS IS a report of an attempt made to evaluate in dollars the worth of veterinary service in general practice. A number of phases relating to the economic aspect of veterinary medicine might have been studied but the primary objective was to put the dollar sign on veterinary service for livestock owners. In short, just how much does an owner stand to gain by calling a veterinarian for his livestock? The idea was original with the senior author. No literature was available for guidance and no claim for completeness is made, and, as there were many variables in this study, a conservative position was taken on all estimates. If more detailed figures could be obtained on such factors as mortality, loss in labor and by-products due to disease, danger to human welfare, etc., the positive 7 to 1 factor of money losses saved over costs of treatment might be raised to 10 to 1, or even more. It is hoped this report may lead other members of the profession to make surveys and to gather statistics of a similar nature.

With the coöperation of nine graduate practicing veterinarians in Oklahoma, Missouri, Nebraska, and Kansas, data covering one month's practice (October, 1943) were obtained. It involved 7,113 treated cases. Each veterinarian filled out questionnaires covering the species of animal treated, the condition diagnosed, the market value of each case before and after the sickness, the cost of the call, the normal mortality of such conditions, and the actual loss. A summary of these results shown in table 1 offers a great field for numerous conclusions. The following readily present themselves.

1) An analysis of the total charges of \$5,917.80 for the veterinary services performed reveals that \$2,228.40 was spent for treatment and operation procedures, and \$3,689.40 was spent for preventive measures; in other words,

over 60 per cent more was spent on preventive medicine than on treatment.

2) The total value of the animals which might have died, at normal mortality, would have been \$19,506.00.¹ This figure represents no preventive medicine values. It is the reasonable amount that livestock owners could be expected to lose if no veterinary service was obtained. From this was subtracted the expense the owners actually had, namely, the veterinary fees of \$2,228.40 charged for treatment and operative procedures only (but not including preventive inoculations) plus the actual loss encountered, \$1,452.00, a total of \$3,680.40. Thus, \$19,506.00 minus \$3,680.40 leaves \$15,825.60, the amount saved by calling in good veterinary service. This is \$7.10 profit for each \$1.00 spent for veterinary service.

3) On the basis of fees charged by the nine veterinarians in their respective territories, the average costs of veterinary service are approximately \$1.35 per \$100 worth of cattle, \$5.25 per \$100 worth of horses, and \$1.00 per \$100 worth of hogs.

4) The services of a veterinarian are often worth more than the average (\$7.10 for each \$1.00 spent) mentioned previously. An example would be in the cases of parturient paresis—the average charge as indicated in the table is \$6.00 per case, but this charge saves the owner about \$120.00, or the full value of the animal, since nearly all such cases die if not treated.

5) It can well be recognized that the figure of over \$7.00 saved to each \$1.00 spent does not represent all the savings to livestock owners, since this represents only the amount saved by not actually losing livestock through death. This figure does not include money saved which otherwise would have been lost through loss of work by horses, loss of milk from cows, and loss of weight from hogs and cattle had not veterinary service been rendered. The potential savings in preventing the spread of disease to other animals also is not considered. There are other intangible savings not evaluated. When all factors are considered, one might add 25 per cent or more to the savings realized by calling a veterinarian.

It is granted that such factors as months of the year other than October, sections of the country other than the Middlewest, and types of practice other than those re-

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¹A conservative figure arrived at with difficulty from standard veterinary text and other available sources.

ported upon might have given different results. Yet it is a source of satisfaction that, aside from relieving the suffering and safeguarding the human and animal health

from disease outbreaks, veterinarians and the services they render are a definite source of profit, from a dollar and cents status, to the owner of livestock.

TABLE 1

CONDITION OR SERVICE	NUMBER CASES TREATED	TOTAL CHARGES (\$)	VALUE BEFORE TREAT- MENT (\$)	VALUE AFTER TREAT- MENT (\$)	ACTUAL MORTALITY		NORMALLY EXPECTED MORTALITY	
					No.	VALUE (\$)	(%)	VALUE. (\$)
CATTLE								
Digestive Disturbances	102	410.00	6,956.00	6,676.00	3	280.00	25	1,739.00
Retained Placenta	56	270.25	6,435.00	6,435.00			35	2,252.00
Dystocia	19	95.00	2,119.00	2,084.00	1	35.00	90	1,907.00
Parturient Paresis	51	306.10	6,085.00	6,085.00			100	6,085.00
Anaplasmosis	3	17.50	275.00	60.00	2	215.00	50	137.00
Actinomycosis	24	81.00	2,230.00	2,230.00			10	223.00
Active Hemorrhagic Septicemia	34	72.00	1,210.00	1,155.00	1	55.00	90	1,089.00
Pneumonia	13	111.00	780.00	740.00	1	40.00	75	756.00
Metritis	4	18.25	370.00	370.00			35	195.00
Acetonemia	10	57.15	1,140.00	1,138.00			30	342.00
Mastitis	7	47.50	975.00	975.00			10	97.00
Vital Surgery	17	121.00	1,530.00	1,500.00	1	30.00	50	765.00
Poison	9	29.00	895.00	400.00	4	495.00	90	805.00
Tests for Brucellosis Tuberculosis Vaccinated for Blackleg Brucellosis Dehorning, etc.	2,194	1,010.45	164,892.00	164,892.00				
Total	2,543	2,646.20	195,892.00	194,740.00	13	1,150.00		16,392.00
HORSES								
Digestive Disturbances	62	298.00	5,740.00	5,480.00	4	260.00	25	1,435.00
Injuries	20	95.50	2,050.00	2,050.00			50	1,045.00
Fistula of Withers	7	45.25	720.00	720.00				
Dentistry	5	27.00	320.00	320.00				
Castration	8	36.25	805.00	805.00				
Miscellaneous	4	16.50	260.00	260.00				
Total	106	518.50	9,895.00	9,635.00	4	260.00		2,480.00
SHEEP								
Wormed	74	20.00	940.00	940.00				
SWINE								
Pneumonia	3	8.50	86.00	86.00			75	63.00
Castration	56	16.75	330.00	330.00				
Enteritis	59	29.55	1,068.00	1,026.00	4	42.00	50	534.00
Vital Surgery	3	12.50	76.00	76.00			50	35.00
Vaccination and Treat- ment for Erysipelas	275	108.20	1,831.00	1,831.00				
Influenza	1	3.00	50.00	50.00			5	2.00
Vaccination for Hog Cholera	3,993	2,554.00	24,161.00	24,161.00				
Total	4,390	2,732.50	27,602.00	27,560.00	4	42.00		634.00
Grand Total	7,113	5,917.80	234,329.00	232,875.00	21	1,452.00		19,506.00

Les Prés Salés (=Salted Meadows)

HAVE YOU EVER heard of the salted meadows along the English Channel in Normandy—sheep pastures where the mutton is salted

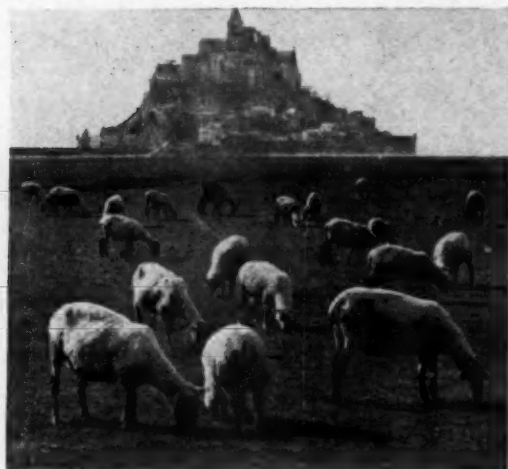


Fig. 1—A flock of sheep grazing on the "Salted Meadows." These sheep are said to dress out as salted mutton.

in vivo? Avranches, captured by American troops Aug. 1, 1944, is famous for being surrounded with that sort of pasture land



Fig. 2—Mont St. Michel as seen from the adjacent pasture lands.

(fig. 1); in the background several hundred yards off shore, stands the medieval abbey, Mont St. Michel (fig. 2), occupying

the entire island of the same name. Built in the eighth century and used for various purposes through the troubled history of France, the abbey was generated (or degenerated) to a national monument for the attraction of tourists who dote on ancient masonry and architecture. Figure 3 shows two pictorial details which give a general idea of the integer at close range. Except that the abbey was used as a prison during the French Revolution in the 1790's (so the guide said), it has no significant secular history, and save for the "salted mutton" raised near by, it is as nonveterinary as a glacier. The natives declare and scientists seem to admit that the latter is a

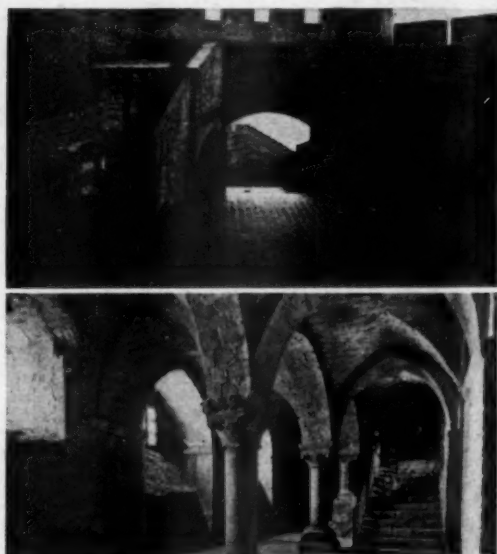


Fig. 3—Two views within Mont St. Michel, transformed from an abbey to an attraction for tourists.

biologic freak—sodium chloride in the living body beyond the physiologic level. Anyhow, a group of curious veterinary officers marking time at Le Mans in May, 1919, waiting for transportation home, made a trip to Avranches to investigate. The date was May 14, 1919, and the party was headed by Major Richard H. Power, temporarily in charge of the veterinary service in the Le Mans area. It was a trip in the interest of science, made in an army automobile. Army transportation isn't fur-

nished for sight seeing. The map, although of some value in tracing the "second front" as of the date mentioned, is reproduced here to register a journey "in the interest of veterinary science" from Le Mans to Avranches by veterinary officers of World War I while waiting for their homeward bound ship to dock at Brest. To these and others who went to Mont St. Michel and *Les Prés Salés* during the fracas of the teen decade, the capture of Avranches by the Yanks in August was more than a

passing event of World War II; it was a thrilling *aide memoire* to forgotten side-lights of the veterinary service twenty-five years ago. Le Mans, Rennes, Le Havre, and coastal Brest, St. Nazaire and La Rochelle are more than just memories of the Kaiser's futile attempt to conquer the world. They live in the pages of American history not as battlefields but as places where millions came and trained and went in defending the American way of life for the first time.



Map showing the "second front" as of August 1, 1944, and points of interest in World War I.

An Insight Into the Army Veterinary Service

Says *Depot Doings* of this group of veterinary officers who are on duty in the California Quartermaster Depot, Oakland:

"The last few years have seen rapid strides made by veterinary medicine. The veterinarian of today is schooled in diseases and ailments of all animals, both domestic and wild, and the related subjects which are part and parcel of such subjects

in which such supplies are manufactured, handled, stored, shipped or issued; the sanitary condition of dairies and milk herds supplying troops; and for making recommendations with reference thereto and with instruction of veterinary personnel in the performance with the foregoing duties. Such inspections of these supplies as to quantity and compliance with specifications



Travelling by day and by night, these V.C. officers see to it that our boys get the finest foods of any army in the world. Left to right: Lieutenants Foelschow, Mynatt, Miller, Aldridge, Dirstine, Huston. Top row: Lieutenants Holen, Leadbetter, Morris, Grover, White. Lt. T. B. Eville is not shown.

as bacteriology, physiology, pathology, etc. The specific duties of the army veterinarian are laid down tersely and broadly in Army Regulations which states: 'The veterinary service is charged in peace and in war with duties falling under definite heads with respect to animals of the Army and food supplies of animal origin.'

"Service at this depot is concerned mainly with food supplies, of which A.R. state: 'As regard food supplies, the veterinary service is responsible for investigating soundness of quality and sanitary conditions of meats and meat foods and dairy products prior to and at the time of purchase, while in storage and at issue; sanitary conditions of establishments, storehouses, freezers, refrigerators, refrigerator space in cars, and ships and other places

are made at the time of purchase or such other times as may be required by purchasing officers.'

"As can be seen from that quotation our inspection is broad, and the veterinarian was chosen to do it because of his special training and understanding of factors underlying many conditions."

The veterinary personnel of this depot consists of 17 officers and 20 enlisted men under the command of Col. F. L. Holycross, V.C. The service inspects food products made in the Bay Area by the San Francisco Market Center, except where the federal meat-inspection service exists. Even the health of the K9 Corps is protected by this particular group of officers and men, since they inspect plants where food for the dogs of the K9 Corps is produced.

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

Renal Calculus in a Dog—A Case Report

GEORGE J. FREIERMUTH, D.V.M.

Boston, Massachusetts

AS REPORTS of renal calculi in dogs are not common in the literature and are usually confined to necropsy findings, it seems of value to report this case because of its complete history.

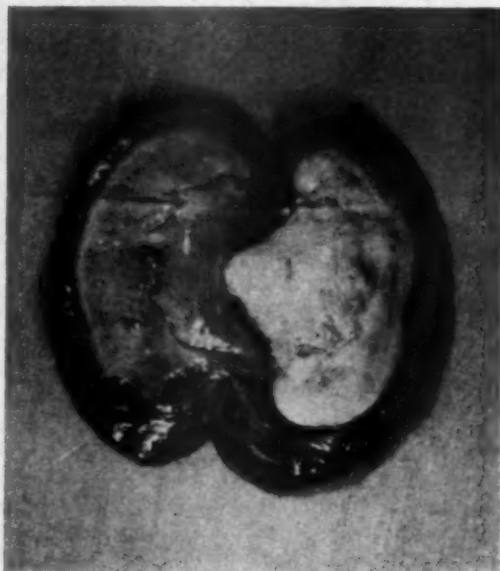
A spayed female Dalmatian, age 7 years, was admitted to the hospital because of hematuria. About a year ago she developed nocturia, and three months later passed clots of blood in the urine. The urine was cloudy, alkaline in reaction, specific gravity 1.009, showed pus macroscopically and gave a 4+ test for albumin; the sediment contained many motile organisms which proved to be *Proteus vulgaris*.

The dog was given a four-day course of sulfadiazine and pyridium. Three days later, the urine was again analyzed and found unchanged. A second four-day course of the same drugs was administered. Several days later, the animal developed a severe streptococcus infection of the eyes which responded to local treatment with sulfathiazole ointment, and sulfanilamide systemically. Following this, the urine was slightly bloody, pus was present, and again *P. vulgaris* was isolated from the urine. Methenamine was given for one week, but there was no change in the urine. Sodium acid phosphate was then given because of the constant alkalinity. After four weeks of this treatment, the specific gravity rose to 1.016, pus was no longer present macroscopically, but the number of red cells increased and the urine was very bloody. Showers of motile organisms were seen in some specimens.

As the hematuria persisted in spite of

the seemingly improved kidney function, the dog was presented at the Angell Memorial Hospital for diagnosis. Except for the time of the eye infection, the dog showed no symptoms of pain nor illness.

Upon admission to the hospital, the ani-



Photograph of the affected kidney.

mal appeared well-nourished and in good health. There was definite pain evinced on palpation of the bladder. X-ray of the abdomen and pelvic regions, after the administration of diodrast, revealed a large calculus in the pelvis of the left kidney.

It was obvious under the circumstances that the patient's condition would not improve. As there was a cystitis developing which in time would perhaps involve the

From Angell Memorial Hospital, Boston.

The author is indebted to Miss Anderson of Fort Devens Hospital, Ayer, Mass., for the case history, and to Drs. Munson and Blakely, of the Angell Memorial Animal Hospital, for the surgery.

other kidney, it seemed best to remove the affected kidney.

The operation was performed through a midline incision. The right kidney felt and looked normal. The left one was slightly enlarged, flabby, and the stone was definitely palpable. The renal vessels were then ligated and the kidney removed. Two days after the operation, the urine cleared up. The patient made an uneventful recovery and was sent home eight days later.

The calculus entirely filled the pelvis and adhered to it closely. The medullary portion was flabby and shrunken. It appeared as though the kidney might have been functioning but little. Its weight was 80 Gm.; the calculus weighed 40 Gm. It was made up of calcium phosphate, magnesium ammonium phosphate, and possibly ammonium urate. This is in accord with the history in that at a pH 7 to 8, with the urine ammoniacal, and *P. vulgaris* breaking down urea, mixed calculi of calcium phosphate may form if precipitation occurs slowly.

Urethral Obstruction in Newborn Foals

The two cases of obstructed urethra in newborn male foals reported in the JOURNAL (one in January, 1944, by Charles Haasjes and another by Capt. Ike Hayes in the July issue) brought a letter from D. I. Skidmore, Washington, D. C., calling attention to reports of that incident published in 1909 and 1910. Quoting:

In connection with reports in the current January and July issues of the JOURNAL regarding urethral obstruction in foals, I think it may be of interest to you and perhaps others to be referred to my report on page 316 of the *American Journal of Veterinary Medicine* for November, 1910 on two cases of "Occlusion of the Urethra." Upon locating this reference you will note that my response was inspired by a report of Dr. Edgar Helny, published in the October, 1909, issue of the same Journal, page 284. Dr. Helny reported from Lebanon, Ind., on "Pervious Urachus."

While my report was made from Dayton, Ohio, in 1910, the cases observed occurred in 1904, forty years ago. These cases require no radical operation provided they are recognized early and in them the veterinarian has an opportunity to render real service which the owner appreciates.

In my opinion, the bladder, perhaps of the unborn foal, is the original source of the obstruction. Secretions apparently become more or less precipitated and congealed and with pressure form a mass such as described in the last paragraph of my report. Should you be unable to locate the references, I shall be glad to have them copied and to comment further if you or others should so desire.

Rare Cervical Tumors

A 10-year-old Jersey in the last month of pregnancy was suffering from a fleshy mass protruding through the vulval orifice which upon examination was found to be composed of eight tumors the size and shape of Brazilian nuts at the free ends of elongated cordiform growths, each attached to the cervical folds. Owing to the advanced pregnancy, the tumors were removed under local anesthesia at the site of extirpation after drawing out the cervix with two pairs of uterine forceps. The extirpations were effected with serrated curved scissors. The cow, which was an excellent breeder, calved in due time without any difficulty. As there was no evidence of malignancy, the specimen was not sent to the laboratory for classification. Another similar case was seen yesterday (July 5, 1944). I realize that fibroid tumors, the size of a calf's heart, attached to the hymenal ring sometimes occur, but I am unable to find any reference to growths of this nature proceeding from the cervix.—Charles H. Haasjes, D.V.M., Shelby, Mich.

For relieving pain and regressing growth and metastasis, castration and diethylstilbestrol therapy achieve results in carcinoma of the prostate not obtainable by any other treatment, but neither method is curative.—Abstract, J.A.M.A., April 8, 1944, p. 1088.

Japan will go down in defeat because hari-kari, in lieu of surrender when the jig is up, is the outward expression of the feeble mind.

Keep your money in your pocket and you'll lose your body and your soul, or purchase immunity with War Bonds—the best investment of our financial system.

Listerellosis—A Case Report

GEORGE C. POPPENSIEK, V.M.D.

College Park, Maryland

FOUR WEEKS before her expected lambing date, a Hampshire ewe aborted one of twin fetuses while on the pasture of a well-kept farm in Maryland. The other fetus was delivered dead by manual traction on the following day. Both showed evidence of dehydration.

A pure culture of a gram-positive, non-sporulating bacillus was isolated from the liver and kidneys of the aborted fetus. Although the cultural characteristics were not typical of *Listerella monocytogenes* in all respects, the resemblance was marked.*

The ewe made an uneventful recovery and showed no symptoms of listerellosis, either prior to or since the abortion. Furthermore, no history was found of any previous infection of this nature in the flock. However, thirteen days before the abortion occurred, 29 young ewes and rams had been brought into this flock from a farm in New York. All of these sheep appeared to be healthy at the time of importation, and none have shown clinical evidence of *Listerella* infection to date, but it may be possible that one or more of these animals carried the infective pathogen.

Thirty-six days after the abortion in the ewe, a 4-year-old purebred Aberdeen Angus cow in the beef cattle herd, and on the same pasture as the sheep, was observed to be running around the field in a terrified manner. Her lower jaw appeared to be paretically dropped. She was salivating profusely, and had a rapid, stertorous respiration. She moaned intermittently, and, on occasions, blew forcefully through her nostrils. She also had a paralysis of the throat, for she was unable to drink, despite several anxious attempts.

She violently resented any external pal-

pation of the throat and neck, and kicked and pranced about wildly when approached. Before she was finally restrained for manual examination, she charged viciously at the other cows, the veterinarian, and the herdsman.

Polyuria was a marked symptom. She had a slightly incoordinated stiff gait, particularly in the pectoral legs.

A pronounced impairment in vision was obvious. She stumbled over a pail in her path, and walked directly into a fence, at the same time glancing excitedly about, trying with difficulty to recognize the objects in her immediate surroundings.

It was thought that the animal might have rabies, but a diagnosis was withheld until further observation could be made.

On the second day, the cow was noticed to be very dull. Her violently aggressive tendencies were no longer apparent; she walked constantly in a circle, always traveling in the same direction. On the third day, she became comatose and was destroyed by incision of the dorsal aorta per rectum.

A pure culture of a gram-positive, non-sporulating bacillus was obtained from the medulla oblongata, but no organisms were recovered from the cerebellum. Sugar fermentation reactions were studied. Dextrose was acidified without gas formation within twenty-four hours. Sucrose and maltose were acidified more slowly, but became definitely acid within a few days. Lactose was acidified very slowly, and mannite failed to become acid.

Histologic examinations of the hippocampus major failed to show the presence of Negri bodies, and mice inoculated with saline suspensions of emulsified hippocampus tissue, previously washed in 10 per cent ether for several hours, failed to succumb within thirty days.

Histologic sections of formalin-fixed medulla oblongata, stained with haematoxylin-eosin stain, disclosed characteristic perivascular cuffing.

On the basis of the isolation of this organism from the medulla oblongata, the

Assistant Professor of Veterinary Science, Live Stock Sanitary Service Laboratory, University of Maryland.

*Acknowledgment is given to Dr. L. T. Giltner, assistant chief of the pathological division of the Bureau of Animal Industry, United States Department of Agriculture, and to Dr. C. M. Cotton, cooperative agent for the federal Bureau of Animal Industry and the State of Maryland, for their assistance in identifying this organism.

study of its morphologic structure, and its differential sugar fermentation reactions, together with the histologic findings of perivascular cuffing in the medulla, correlated with the symptoms and the fact that the sheep and the beef cattle grazed on the same pasture, a diagnosis of listerellosis was made.

Tetanus Immunization in Horses

Up to the past decade, tetanus infection in horses caused substantial losses, but since the inception of toxoid prophylaxis, the losses have been markedly decreased.

Monnier and Lebasque [*Bull. Acad. vét. de France*, 11, (1938): 461-466] of the French Army, reported in 1938 that during a six-year period only 1 case of tetanus occurred in a group of 39,300 horses immunized. Among the nonimmunized animals of the Army, the annual peacetime occurrence of tetanus cases was 0.45 per 1,000 with a mortality of 75 per cent. They recommended two 10-cc. injections of toxoid, one month apart and a third injection at the end of one year.

In the commercial production of hyperimmune serums, it was found desirable to protect the horses against chance infection with tetanus. Alum-precipitated tetanus toxoid was prepared from toxins containing about 20,000 m.l.d. per cc. This toxoid was given in 10-cc. doses at three-month intervals, and at the end of one year titrations were made for serum antitoxin. Of 232 animals studied, 218 (94%) showed at least 0.01 of a unit of circulating antitoxin. [It is agreed by most workers that in both man and horses, a level of 0.01 of a unit can be considered as satisfactory protection against tetanus infection.] The remaining 6 per cent did not show any circulating antibodies. At the end of a two-year period, 78 of the original 232 horses were still available, and when their serums were tested for antitoxin levels, they were found to contain at least 0.01 of a unit.

The lasting effect of a single-injection immunization was also studied. Each of a large group of horses belonging to a commercial dairy was immunized with one 10-cc. dose of alum-precipitated toxoid in 1937. Seven years later (1944), 34 of these horses were test bled and their

serums titrated for tetanus antitoxin. A control group of 17 unimmunized horses of the same dairy and maintained under the same conditions, were also tested. Of the immunized group, 33.2 per cent showed a minimum of 0.01 of a unit per cc., and 61.8 per cent showed no circulating antitoxin. The entire group of unimmunized animals showed no antitoxin.

From these observations, it would seem that the conservative recommendation for immunizing horses against tetanus should be to employ two 10-cc. doses of alum-precipitated toxoid, at a one- to three-month interval and follow with an annual booster injection of 10-cc.—*Lester Reddin, Jr., V.M.D., and Carl H. Parsons, Pearl River, N. Y., May 17, 1944.*

Comment.—The above is the first long-time study on the antitoxin values of the plasma of horses immunized against tetanus with the toxoid preconized and developed by Ramon of the Pasteur Institute of Paris in the early 1930's. The seven-year observation confirms the report of the six-year study published in 1936 by the Pasteur workers after their extensive use of tetanus toxoid in the horses of the French Army.

To keep the history of tetanus toxoid in this country in order, it should be of record that Ashe Lockhart was the first to produce that immunizing agent for animals in the United States and that his original schedule of dosage was 2 injections one month apart and a fortifying dose one year later, as was recommended for the horses of the French Army. The 3-dose plan appears to be sound.—Editor.

Livestock of the U.S.A.

The livestock population as of January, 1944 and January, 1943 was:

	1944	1943
Cattle	82,192,000	79,114,000
Milk cows	27,607,000	27,106,000
Sheep	51,718,000	55,775,000
Hogs	83,756,000	73,736,000
Turkeys	7,520,000	6,704,000
Chickens	572,460,000	540,798,000

During 1943, the people ate more proteins, fats, and calories than in the pre-war year, 1939, rationing notwithstanding.—*Food Industries.*

CLINICAL DATA

CLINICAL NOTES

Clinical Hints from Kansas*

Sodium iodide solution should be prepared fresh. Solutions deteriorate.—*Farquharson.*

• • •

For poultry coryza mix 3 ounces of sulfathiazole to each 100 lb. of mash.—*Crispell.*

• • •

Poultry inhalant: Steam-distilled pine oil, 3 oz.; guaiacol, 2 oz.; mineral oil sufficient to make 1 pt. Spray with a warm syringe.—*Dudley.*

• • •

To start respiration in a newborn pup, insert the tip of a pair of forceps into the rectum and gently extend it forward. It may cause the pup to gulp and respire.

• • •

For artificial feeding of orphan puppies, C. P. Zepp recommends: top milk (cream), 1 oz.; sterile water, 1 oz.; lactose, 1 dr.; lime water, 1 dr. Feed every two hours. At the end of a week, add the yolk of 1 raw egg.

*Bull. Kansas Vet. Med. A., June 1, 1944.

Tests on riboflavin for stability by exposure to high temperatures show that its resistance is much higher in animal tissues than in pure solution. The conclusion to be drawn is that meat contains substances that protect its vitamins against destruction by cooking.

Calcium-starved hens is the gist of an article quoting Kennard of the Ohio Agricultural Experiment Station in the *Country Gentleman*, to the effect that the production of calcium-starved hens may run 30 per cent below that of hens receiving a sufficient supply of that mineral.

The most important equipment on a dairy farm is located between and above the shoulders of "the boss." And it should always be kept in good working order.—*Hoard's Dairyman.*

Seldom are the dairy cows of a herd productive for more than six or seven years. Five to six calves is a high average, meaning but four to five periods of lactation, the first of which is not famous.

The meatus of the cow's teat is the mightiest os of animal production. Milk is the most essential food, more milk is lost through mastitis than through any other single factor, and abnormal teat meatus is the main cause of that disease.

Incidence of Equine Encephalomyelitis

Based upon reports received, Chief Miller, U. S. Bureau of Animal Industry, announced that the occurrence of equine encephalomyelitis in the United States from January 1 to July 15, 1944 was:

Calif.	22	Minn.	24
Colo.	1	Neb.	86
Fla.	17	N. H.	1
Idaho	1	N. M.	5
Ill.	20	N. C.	5
Ind.	5	Okla.	23
Iowa	40	S. D.	3
Kans.	18	Tex.	2
Ky.	1(?)	Wash.	5
La.	10	Wis.	4
Mass.	2		
		Total	295

Except for three states not yet heard from at that time, all of the other states reported the absence of the disease. Prompt reporting of cases is urged in order that the information may be currently summarized and announced.

Suggestions for Chronic Mastitis Eradication

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CHRONIC mastitis, as caused by *Streptococcus agalactiae*, is a contagious infection that is wide spread in the milk sheds where dairy cows have been concentrated for many years.¹⁻⁴ In some sections, where milk production has not been an important industry, chronic mastitis is less common than other forms of mastitis. These facts together with the many reports of experimental control of chronic mastitis clearly point to the feasibility of the eradication of chronic mastitis under actual farm conditions.¹⁻¹¹

Frequent laboratory examination of an entire herd will disclose every infected cow and, with this information, an intensive campaign of treatment can be undertaken with the udder antiseptics now available. Cures can be expected in from 50 to 90 per cent of the quarters with latent infections.⁶⁻¹² Cows with incurable infections must be removed from the herd.

In the beginning, the veterinarian should visit the herd weekly if possible. Two complete herd tests, about two weeks apart, are made before treatment is started, except in clinical cases which should be treated at once.

It must be understood that to obtain satisfactory results frequent laboratory examinations are necessary. Every infected cow must be located and either cured or effectively segregated from the noninfected and treated cows; otherwise, the results will not justify the cost. There are certain cows in every infected herd which shed streptococci in their milk and yet show no clinical symptoms of disease. These are the dangerous cows. All cows, whether milking or not, should be included in the first two herd tests. Springing cows, that have a history of udder trouble, should be treated at once without waiting for the laboratory report. Since treatment is highly effective during the dry period, as many cases as possible should be treated at this time.¹²

Individual quarter samples are more satisfactory; they give more accurate results than composite samples and may be cheaper, in the long run, for the first two tests.

Composite samples can be used to check the negative cows quarterly.

Cows with negative laboratory reports should be retested quarterly as long as infection exists in the herd. Quarters reported suspicious are retested until their true status is determined. Quarters reported positive on two tests should be treated as soon as possible. If there are too many to treat all at one time, start at the head of the milking line and treat a certain number on each weekly visit. In my opinion, it is often good practice to give two treatments at weekly intervals and then check results with a laboratory examination.

Cows with three or more infected quarters are usually poor prospects for treatment and should be eliminated without treatment whenever possible. However, cows should not be condemned on one positive report unless confirmed by the history or physical symptoms.

By treating a limited number of cases on each weekly visit and feeding the milk from treated quarters to calves, very little disturbance to the output of market milk will occur. Cows added to the herd must be held in isolation until their status can be determined. Promiscuous nursing of cows by calves is not to be permitted and calves are not permitted to nurse each other nor themselves.

Latent infection is sometimes brought to the clinical stage by heavy feeding and other exciting factors. Cows with infected quarters should, therefore, not be "pushed" for production nor fed a full ration of high protein concentrates.

One great difficulty in the eradication of *S. agalactiae* is that we can seldom get an even start with the infection. Usually, we have to start with a handicap of several years accumulation of chronic cases. As a rule, when these are finally disposed of, further losses can be prevented by early diagnosis and treatment.

Treatment is most effective during the dry period and least effective during the course of clinical symptoms.¹² However, lactating cows should be treated as soon as

the presence of infection has been proved. To wait for the dry period invites the risk of a flare-up with associated losses and lowered efficiency of the treatment. A treatment or two during lactation may eliminate the infection; if not, they may ward off clinical symptoms until the cow can be treated as a dry case. When clinical symptoms do occur and treatment is not effective, the quarter should be dried off and treated as a dry case until infection is no longer found on laboratory tests.

Most cases of chronic mastitis are caused by *S. agalactiae* but other streptococci may also cause it. Staphylococci are a frequent cause of both acute and chronic mastitis.¹⁴ Therefore, the test for chronic mastitis is not for *S. agalactiae* alone but for any bacteria that persist and cause mild or severe inflammation in the udder.

At the Storrs Experiment Station, the average loss from subclinical chronic mastitis was 633 pounds of milk per cow-year. This loss can be largely prevented to the mutual advantage of the herd owner and the milk-consuming public.¹⁵

The veterinary profession has at its disposal the means to prevent most of the losses from chronic mastitis caused by *S. agalactiae*. It only remains for it to become skillful in the interpretation of laboratory diagnosis and in the use of the new udder antiseptics.

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Encephalitis of Man and Louping Ill of Sheep

During May and June, an infectious disease of man called spring-summer encephalitis occurs in certain forested regions of Russia, and the virus responsible has been isolated in ticks (*Ixodes persulcatus*) of wild rodents. The virus has been passed from infected to healthy animals and a study of its nature has confirmed its identity with the specific virus of the encephalomyelitis of sheep known as louping ill or trembling, which was isolated by Pool in 1930. Casala and Webster (*J. Exper. Med.*, Jan. 1944) in a study of louping ill and Russian spring-summer encephalitis, mention the tick, *Ixodes ricinus*, as the vector and they demonstrated cross-immunity and neutralization relationships. They regard the two viruses as identical. Hagan (*Manual of Veterinary Bacteriology*, 1943) writes of louping ill virus affecting laboratory workers. These newly discovered facts add to the knowledge of neurotropic viruses, and their importance in veterinary medicine lies in the discovery of another tick-borne virus disease of farm animals that is capable of being transmitted to man.

Starfish Meal for Chicks

Starfish, taken in the process of cleaning oyster beds, are now dried and ground for chick feed. The starfish meal scored 30.7 per cent protein; 17.6 per cent calcium; and 0.35 per cent phosphorus when analyzed by chemists of the USDA. It proved its feed value when tested against sardine fish meal of equal protein level, but the use of the meal had to be limited to 3.5 to 5.0 per cent of the total ration because of its abundance of calcium.

The Toxicity of *Kallstroemia Hirsutissima* (Carpet Weed*) for Cattle, Sheep, and Goats

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ON Aug. 18, 1943, the author was called to investigate some cattle losses which had occurred near Balmorhea, Reeves County, Texas. The history was as follows: Due to a summer drouth, the ranges in this region were in poor condition, thus forcing



Fig. 1—*Kallstroemia hirsutissima* (carpet weed). A single plant in the foreground with an extensive growth in the background.

the owner to lease some fields in the irrigated section around Balmorhea for grazing purposes. A total of 247 head of cows, calves, and bulls was gathered from a range pasture on August 1, placed in an alfalfa field until August 4, on which date the cattle were again gathered, divided into 3 groups, and placed in 3 different fields. The first group, consisting of 145 head, was placed in a field in which the principal forage was Sudan grass; the second group, consisting of 48 head, was placed in a field in which the principal forage was Johnson

grass; the third group, consisting of 54 head, was placed in a field containing some Johnson grass and an extensive growth of carpet weed. This plant did not occur in the other two fields. One cow was found down in the third field on August 12, and was unable to stand, although she did not appear very sick at the time. On August 14, this animal was found dead and 3 additional animals were down. The affected cows all showed a complete paralysis of the hind legs but they could drag themselves along the ground with the forelegs. When the hind legs were placed in a normal position, the animals would remain quiet but



Fig. 2—A Cow showing the knuckled over condition of the hind legs.

would make no effort to get up. The owner considered that they did not present a very sick attitude. However, all 3 cases died within the next twenty-four hours, death in these cases being hastened, if not actually caused, by exposure to the hot sun. On August 14, the owner decided to move the remainder of this group. All appeared healthy when he first started to drive them from the field, but by the time they reached the gate 1 cow had developed an extreme knuckling over of the hind legs and as a result had to be dropped from the herd. The herd was slowly driven to another field, a distance of about a mile. During the drive, new cases were constantly

*A local designation which is quite appropriate. For a description of the plant which extends from Colorado to Arizona, Kansas to Central Texas and on into Mexico, see, *North American Flora*, 25, (2), (1910):112.

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In coöperation with the BAI, USDA.

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developing, and by the time the herd was placed in the new field, at least 10 head were showing moderate to well-marked knuckling over.

The new field contained none of the carpet weed and by August 18, all but 3 of the



Fig. 3—Sheep 142 showing complete knuckling over in the left hind leg, leaning against the fence for support.

affected animals which had been put there had made a complete recovery. Of the 3 remaining cases, the bull was affected the worst but was able to move about and graze. The cow which had been dropped from the herd and allowed to wander into an adjacent alfalfa field showed a complete knuckling over of both hind legs but no irregularity in the handling of the forelegs. She would not try to stand for longer than a minute and while standing there was a dancing-like movement of the hind legs, which probably constituted attempts to place the hind feet in a normal standing position but without success. While lying down, unmolested, the animal ate well, thus indicating a normal appetite. From a distance, the respiration appeared normal; no attempt at a close inspection was made as the cow was wild and the owner was afraid of a serious injury if we insisted on a close inspection. There was a slow but steady improvement in the ability of this animal to stand and by September 1, she was able to move around fairly well but with no improvement in the knuckled over condition (fig. 2). By this time, the remainder of the animals had made a complete recovery. The cow was observed for the last time on October 8, at which time the knuckled over condition appeared to be fixed. While walking, there was a rocker-like movement over the toe of the hoof due to complete flexion of the phalangeal joints in which no movement could be detected.

On September 1, this same group of cattle was moved to another field in which an extensive growth of carpet weed was known to exist. The owner did not look at these cattle again until September 11, at which time 2 were found dead and several more affected. They were again moved to another field containing none of this plant and all the affected animals made a complete recovery in about two weeks. The second



Fig. 4—Goat 132 presenting the attitude in which it was found on the second day after it quit eating carpet weed.

movement of the cattle was necessary in order to provide fresh forage, but why this plant was not avoided in the second movement can be explained only on the basis that the owner was not fully convinced of the toxic nature of the plant. His second experience was more convincing.

No autopsies were made as the animals had been dead too long before the investigations were made possible.

On the first investigation, it was quite evident that the carpet weed must be responsible for the losses; in fact it is rare

to find such clear-cut evidence concerning the toxicity of a plant from field observations. In this case, the owner had unwittingly created ideal experimental conditions for determining the toxicity of a plant which had been unsuspected prior to this time. However, more specific information was desired and some of the plant was gathered for experimental feeding. In the continuation of this work, the plant was gathered at intervals of three to six days, kept as fresh and green as possible, and fed to 1 yearling heifer, 1 sheep, and 2 goats; the results of which are presented in this publication.

The plant was fed to heifer 128 from August 19 to September 7, at the rate of 5 lb. daily (1% of the body weight) and from September 8 to 20, she received 7.5 lb. daily. On the latter date, she was showing evidence of a pharyngitis and the feeding had to be discontinued. As the animal would not eat the plant, forced feeding was required. Therefore, the pharyngitis was not surprising as the continued feeding of so large a volume of any plant over a considerable period frequently results in injury to the pharynx. On September 3, an irregularity in the movement of the hind legs was first observed. When walking, the pasterns would occasionally snap forward and then back into normal position. This was not observed when the animal was forced to run. By September 20, this condition was more marked and occurred at more frequent intervals, however, an actual knuckling over was not observed. On September 22, the animal was driven around the pasture for about forty-five minutes but with no intensification of the symptoms as was observed in the field cases during the movement from one field to another. The results in this case, although significant, were not as conclusive as one would desire.

The plant was force-fed to sheep 142 from August 25 to September 22, the daily dose being equivalent to 1 per cent of the body weight. On August 29, the sheep began to eat the plant and continued to do so until the termination of the experiment on September 22. During the period of the experiment, the animal received a total of 69 lb. or 86 per cent of its body weight. Prior to September 22, forced exercise had failed to demonstrate any weakness in the hind legs. On the morning of this date,

the animal was taken from its pen and allowed to run for a distance of about 50 yards at which point the hind legs appeared to collapse and it fell. It was unable to get up immediately and when it did succeed in doing so there was a complete knuckling over of the hind legs as is shown in the accompanying picture. At this time, a standing position could not be maintained for longer than about thirty seconds and while standing, there was a constant movement of the hind legs which appeared to be an effort to place the hind feet in normal position but without success. The animal remained down most of the time until October 10, although its ability to stand for longer periods had gradually increased. During this period, the appetite was good and heart action and respiration were normal. On the morning of October 10, the sheep was found standing with but moderate knuckling over, and forced exercise on this day failed to intensify the symptoms. Complete recovery was but a matter of a few days thereafter. The clinical picture in this sheep was a duplication of that observed in the cattle, even the time required for complete recovery being quite close to that observed in some of the cattle under field conditions.

Goat 132 ate a total of 5.5 lb. of the plant (11% body weight) during a three-day period, but refused to do so thereafter although there was no loss of appetite as it would eat alfalfa hay when given the opportunity. On the morning of the third day after it had quit eating the plant, it was found walking around the pen with the forelegs flexed at the carpal joint, the latter resting on the ground. The hind legs appeared to be a little weak. The hock joints were slightly flexed but there was no knuckling over. It was killed for post-mortem examination twenty-four hours later. No gross lesions were found, the same being true for microscopic examination of material collected at the time of autopsy.

Goat 119 appeared to relish the plant from the day it was placed on experiment, August 28, until the day the feeding test was terminated on October 23. During this period, it ate a total of 142 lb., which was equal to 177 per cent of its body weight. During the feeding test, the animal was subjected to forced exercise on several occasions with no indication of it having suffered any toxic effects. On the day the

test was terminated, due to the fact that there was no more green plant available, forced exercise was continued for a period of one hour with no indication of a weakness of the hind legs. The animal was evidently very resistant to the toxic principle of the plant. It is of interest to note, that in previous work it had exhibited a similar resistance to the toxic principle of red-stemmed peavine.

DISCUSSION

As is usually the case, the residents around Balmorhea were quite surprised to learn that a very common plant of that region is toxic to livestock. However, an analysis of the situation leaves no reason for surprise that the toxic principle of this plant could go undetected for so many years. The grazing of farm land in that area is a common practice, but as a rule the grazing is done in the fall of the year after frost has killed this plant. Observations last fall disclosed that this plant is grazed very little after it is killed by frost. During the past summer, for some reason, an unusually large number of plowed fields were not cultivated. It was on such fields that an extensive growth of the plant developed and on which the losses occurred. The first field contained approximately 50 acres, of which about one-half was entirely covered with the plant. With hungry cattle brought from a drouth stricken pasture, it is not surprising that they would graze large amounts of the chief forage available.

SUMMARY

Cattle losses which were considered to be due to the grazing of *Kallstroemia hirsutissima* are reported. The feeding of the plant to one heifer produced suggestive but not conclusive results. The plant was found to be toxic to sheep and goats.

Equine Encephalomyelitis: Mosquito Vectors

An explosive outbreak of equine encephalomyelitis in Trinidad—the first to occur outside of continental Venezuela—enabled Major Richard T. Gilyard, V. C., U. S. Army, and coworkers of the Venezuelan Institute of Veterinary Research to demonstrate that the mosquito, *Mansonia tittilans*, complex (culicine), and at least one other species are vectors of the virus of

that disease. The experiment setup, including infected and susceptible solipeds and laboratory animals, screened enclosures, mosquito traps, and the methods employed are described in the *Bulletin of the U. S. Army Medical Department* for April, 1944.

A significant sidelight to these experiments is that horses may become immune to the disease through mild (inapparent) attacks due to slight exposure to mosquito vectors. The author observed that the bite of *Anopheles neomaculipalpus*, collected during the experiment, produced a transient febrile reaction in a yearling donkey, and an immunity was apparent seventeen days thereafter which protected the animal against artificial infection, and he thereby accounts for the immunity observed in some horses, which have been naturally exposed.

Latent Rickets in Horses

Rickets is not only a disease of the skeleton; it represents a general nutritive derangement of which the diagnostic criterion is hypophosphatemia and is closely related to microbic and parasitic diseases affecting the process of nutrition which may not be known to exist. Rickets in subclinical form is diagnosed by examination of the blood for calcemia and phosphatemia. Subclinical rickets of horses based upon blood-calcium and blood-phosphorus values is a common disease. In general, phosphorus levels below 50 mg. per liter may be regarded as indicating the presence of rickets. The conclusion was based on the study of the blood of over 27,000 horses and is coupled with the studies of others in other species of domestic animals.—[Lt. R. Monod, *Remount Service of the French Army: Formes latentes du Rachitisme (Latent forms of Rickets)*, *Rec. de Méd. Vét.* 107, May 1931: 253-271.]

Sodium Propionate in Ringworm

Sodium propionate in the form of an ointment or dusting powder is used by the Medical Department of the Navy for the treatment of athlete's foot and other fungous infestations of the skin. While cures of athlete's foot have been obtained by daily applications for four weeks, twenty weeks of treatment is usually required to sterilize the affected skin.—*Science Digest*.

Lesions Produced by Sulfonamides*

Sulfathiazole, sulfadiazine, sulfanilamide, sulfamerazine, sulfapyrazine, or acetylsulfadiazine given to rats in purified diet produced the following lesions:

Marrow.—Depletion of polymorphonuclear neutrophils, stab cells, and metamyelocytes. Rats given acetylsulfadiazine died in three weeks showing densely cellular marrow with extremely large numbers of polymorphonuclear neutrophils.

Skeletal Muscles.—Necrosis and calcification with histiocyte proliferation, infrequently, and more common with sulfathiazole and sulfanilamide.

Cardiovascular.—Calcification or hyalinization of one or more arteries (pulmonary, coronary, renal) from sulfathiazole and rarely from sulfanilamide and sulfadiazine. Myocardial necrosis occurring from sulfaguanidine was not seen in these experiments. Gross hemorrhage of the lower extremities, retroperitoneal connective tissue, peritoneal, pleural, and cranial cavities, thymus, epididymis, testicle, intestine, kidneys, eye, and nose.

Liver.—Hydropic and centrilobular hyaline degeneration of liver cells, granular hemosiderin in Kupffer cells.

Spleen.—Hemosiderosis slight and infrequent except from sulfanilamide. Hemopoietic activity variable.

Kidney.—Intratubular deposits of the drug with more or less severe damage of collecting tubules, except from sulfanilamide. Hemosiderin in the epithelium of the convoluted tubules in a few rats.

Adrenal.—Hyaline necrosis of cortical cells, with or without hemorrhage, in a small percentage given sulfathiazole, sulfadiazine, or sulfanilamide.

Thyroid.—Hypertrophy, hyperemia, and hyperplasia of the thyroid in rats given the drugs. No retrobulbar lesions. Death in thirty days.

Miscellaneous.—Bronchitis, bronchiectasis, occasionally pneumonia, bacteremia

with colonies of coccobacilli in the spleen, liver, kidneys, and occasionally elsewhere.

The occurrence of these lesions varied with the different drugs and the dosage. The above is but an abridged summary of findings recounted here as a warning in prescribing sulfonamides with due regard for their dynamics.

Sugar and Fat

As nutrients, sugar and fat are most effective in the form of lactose and butterfat, according to experiments of the Bureau of Dairy Industry, U. S. Department of Agriculture, which are widely enunciated by the National Dairy Council in its educational campaign to step up milk consumption. Lactose, the tasteless sugar of milk, and butterfat were found to promote the development of firm muscle tissue, to aid in the mobilization of calcium, and thus to develop strong, sturdy bones. Milk gives life a good start and, therefore, should prolong life, the NDC declares.

Fumigacin, Claviformin, and Citrinin

Fumigacin is another of the antibiotic substances made by microorganisms, a close relative of penicillin, clavacin and other products derived from fungi, at the present time of academic importance only in veterinary medicine. Its source is *Aspergillus fumigatus*. Clavacin (The Journal, Dec. 1943, p. 379) is derived from *Aspergillus clavatus*. The two substances, fumigacin and clavacin, have been crystallized and their chemical nature determined. The former contains but a small amount of nitrogen, is potent against gram-positive bacteria, and quite toxic for animals unless the toxic ingredient—gliotoxin—is removed. It is chemically identical with helvolic acid isolated from *A. fumigatus* by British workers. Clavacin is credited with being active against both gram-positive and gram-negative organisms, and is less toxic for animals. A fifth product of the "penicillin group" is claviformin from the fungus *Penicillium claviforme*.

It appears from present knowledge that various fungi are capable of containing identical types of antibiotic ingredients. These facts are mentioned here to show that the study of these sensational anti-

*Endicott, K. M., Kornberg, A., and Daft, F. S., United States Public Health Service: "Lesions in Rats Given Sulfathiazole, Sulfadiazine, Sulfamerazine, Sulfanilamide, Sulfapyrazine, or Acetylsulfadiazine in Purified Diets. Pub. Health Rept., 59, (Jan. 14, 1944): 49-54.

biotic remedies is still in the experimental stage.

Citrinin, product of *Aspergillus* sp. of the *candidus* group, described by Timonin and Rouatt, Division of Bacteriology and Dairy Research, Department of Agriculture, Ottawa, Ont., (*Canad. J. Pub. Health*, Feb. 1944) is another of these antibiotic agents. It was isolated from cattle feed and the crystalline matter obtained was identified as the same as that obtained from *Penicillium citrinum*. Its action, described by others in 1941 and 1942 is that of a bacteriostatic against *Staphylococcus aureus* in dilutions of 1 : 50,000. It is therefore, weaker than penicillin.

Erythema Brucellum

Erythema brucellum is an appropriate name for a special dermatitis of the arms and hands of veterinarians, rarely others, exposed to the uterovaginal secretions of cows, presumably cows affected with brucellosis. It is manifested by an intense eruptive pruritus, the specific nature of which is just becoming known among the allergists of the medical profession. A well-known veterinarian practicing among the dairy cows of a large city milk shed, treated by a famous dermatologist, may be pointed out as a case that went undiagnosed for years, despite frequent examinations and varying treatments.

The entity is an eruptive, pruritic eczema with exacerbations and remissions which correspond to exposures (e.g. to retained placentas) and intervals between exposures. It was described by Huddleson and Johnson¹ and by Markkawejsky and Karkadinowsky² in 1930 as a hypersensitivity of the skin to cow protein or *Brucella* protein. Since the patient may be negative to the agglutination test for brucellosis, its particular relation to the latter has not been definitely established. In fact, Urbach states that *Brucella* infection may alter the capacity to react to brucellergen, or the reaction may continue for a long time

after a nonclinically affected patient is cured.

Urbach and others call this phenomenon a disease of veterinarians, milkers, and laboratory workers. It is, therefore, a disease for the veterinary profession to gazette in its archives—a disease for the Special Committee on Vital Statistics to consider.

Are Anthelmintics Overestimated?

Are worm remedies overrated as compared with so-called sanitary measures? The answer is, no, decidedly, no. As a matter of fact, the use of anthelmintics of known vermicide or vermifuge power is *par excellence* the best means of attacking and solving the worm-parasite problem of domestic animals, for the reason, as pointed out by Maurice C. Hall, that worms are nowhere as vulnerable to attack as during their sojourn in the intestinal tract, and that every female worm killed or driven from her breeding and nesting place represent fewer eggs by thousands to scatter about for handling in the more cumbersome and uncertain sanitary system: plowing the soil, drainage of land, rotating pastures, manure disposal, etc. In the case of the most bothersome worm parasites of farm animals, the host, not the ground, offers easiest place to dispose of them. The best assault against worms the mind can conceive is to blitz, not flank, them out of their nests by using anthelmintics for ammunition. Why complicate a medical problem with mystery where there is no mystery? Turning sheep or cattle or horses to pasture laden with worms is not a high quality of preventive medicine.

Eggs for Calf and Foal Feed

When the price of eggs drops below 2 1/2 cents, Dutch farmers of Holland feed them to calves and colts. A little brewer's yeast to supply vitamin B improves this supplement. Eggs are also used for sick and unthrifty calves. The condition of calves in Holland oscillates with the price of eggs. I once thought that Dutch farmers kept chickens to supply feed for the calves.—*Chas. Haasjes, Shelby, Mich.*

¹Huddleson, I. Forest and Johnson, H. W.: Human Brucellosis, *J.A.M.A.* 94, (1930): 1905.

²Markkawejsky, W. N. and Karkadinowsky, J. A.: Cited by Urbach, *Deutsche Tierarztl. Wechschr.*, 38, (1930): 369.

³Urbach, Erlich, M.D.: Allergy. Grune & Stratton, New York, 1943, p. 520.

Phenothiazine-Salt Mixture for Sheep

Phenothiazine given as a drench or mixed with salt, is one of the least toxic anthelmintics for mature sheep. Its use experimentally in 20 parasitized Merino ewes at the strength of 1 part to 9 parts of salt, over a period of nineteen months, did not change the red cell count nor hemoglobin values nor injure the liver, kidneys, and spleen examined *post mortem*. Climatic conditions and flock management may alter the result but, all in all, phenothiazine mixed 1 to 9 with granular salt was found to be an efficient, nontoxic anthelmintic in this trial. Phenothiazine-salt was less effective in lambs because their worm burden is heavier and they consume less of the salt mixture than adults. The mixture, moreover, cannot be expected to control parasitism in heavily infected sheep. Better that the flock be treated with a phenothiazine drench in the fall or early winter and again in the spring a week or two after all of the ewes have lambed; then follow up with the continuous salt-mixture treatment, implemented with a drench at 3 to 4 months of age, and again if necessary. Drenching the ewes in the fall may not be necessary if they have access to the salt mixture during the summer, but their offspring should be treated when going into winter quarters.

—[W. T. S. Thorp, W. I. Henning, and J. F. Shigley, Pennsylvania State College: *The Efficiency of the Phenothiazine Salt Mixture and Drench for Sheep*. *J. Anim. Sci.*, 3 (Aug. 1944): 242-249.]

Insulin for Azoturia

An officer of the Veterinary Corps, veteran of the forgotten fracas of the teen decade and son of a distinguished veterinarian of "way back when," who knew his azoturia from experience in a large city, writes:

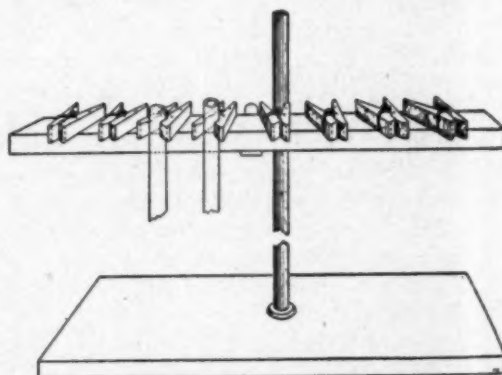
Reference to the letter from Colonel Hale on azoturia (the *JOURNAL*, July, 1944, page 36) with due respect to him and the Russians, I went into the matter of treating azoturia with insulin rather thoroughly at ——— in 1942-1943, and the results were negative. I am unable to convince myself that diabetes, insulin, and azoturia are in any respect related, and no improvement that could be attributed to insulin medication was noted in any horse treated with insulin. Patton's conception (thiamin deficiency theory) of azoturia (*Vet. Med.*, Jan. 1944)

is worthy of further investigation, and I have suggested to veterinary officers that the thiamin treatment be tried and results reported to the Surgeon General's Office. One case treated with thiamin was fatal, so even this is not a panacea which will put a "downer" on its feet in every case. This is just a nostalgic vaporization of a desk soldier. Please withhold my name.

It is wise to have insulin in the kit when treating a case of azoturia. It doesn't score high in pharmacodynamics for the reason that, as in a stroke of apoplexy, the use of drugs could hardly be expected to set things in order. And the same reasoning applies to thiamin.

A Simple Pipette Holder

Arnold Lazarow, School of Medicine, Western Reserve University, describes (*Science*, June 23, 1944) a simple pipette rack made from clothes pins which ought



—After Lazarow, 1944

A Simple Pipette Rack

to be useful also for other purposes in laboratory work. It is acclaimed as being more simple than the racks of the market, which require that the pipette be threaded through several holes which complicates cleansing. Spring clothes pins are attached to a revolving type stand. One segment of the pins is nailed to the board, the other left free. Note that one of the clothes pins controls the rod upon which the board revolves.

Nothing less than all the gold and guts we have will win this war and prevent World War III—the one your children will have to fight.

NUTRITION

MATERIAL FURNISHED BY THE COMMITTEE ON NUTRITION

The Use of Urea as a Protein Supplement for Ruminants

DURING THE last year, when the all-time record of supplies of protein feed have been inadequate to meet all demands, attention of research workers and others has been focused on the possibility of substituting urea for part of the dietary protein for ruminants.

Urea is a chemical compound which may be synthesized from coal, air, and water. Chemists, during the last war, developed a method for removing nitrogen from the air for the production of explosives. This production has been expanded to such an extent that it has been found possible to make a limited supply of urea available to help meet the protein shortage.

Urea is a white crystalline chemical compound without odor and almost tasteless. It contains no protein but supplies nitrogen necessary for protein synthesis in a form which can be used by the microorganisms in the digestive tract of ruminants. These microorganisms in the rumen use this nitrogen as a food, combining it with other elements derived from the ration for the synthesis of their own protoplasm. Their life cycle is very short and in a few hours they die and pass through the digestive tract where they are utilized the same as any dietary protein. Hogs, poultry, and all other animals with a simple stomach, unlike ruminants, cannot utilize urea for the synthesis of protein. It also is of no value in the rations of young ruminants until the rumen is in full operation.

The extent to which urea is utilized depends upon the composition of the ration fed. Research has been reported which

showed little, if any, utilization of urea when fed with timothy hay. When starch, a ready source of energy, was added to the ration, considerable utilization was observed. This is because the starch supplies the energy necessary for the metabolism of the microorganisms and that which is needed for the metabolism of the animal. Where urea is substituted for a certain amount of protein in the ration, it is necessary to increase the intake of such energy producing foods as corn or oats.

In an eighty-day feeding experiment recently completed by the U. S. Bureau of Animal Industry, cows receiving oat hay, corn silage, and a grain mixture consisting of corn, oats, bran, and bone meal, produced as much milk when urea was added to the grain mixture as when soybean meal was used.

Urea was fed at the rate of 0.3 lb. per day. The cost of the urea was a trifle over 1 cent per can per day. Some investigators think that heavier feeding is likely to be harmful, but these investigations point out that less than 0.3 lb., rather than more, would provide the necessary protein under most dairy conditions.

In an extensive experiment reported by the Wisconsin Agricultural Experiment Station, urea was compared with linseed meal as a protein supplement for dairy cows. In this work, 24 cows were carried through three full lactation periods. They were unable to demonstrate any statistically significant difference between a ration supplemented with urea and a similar ration supplemented with linseed meal. Studies on the composition of the milk showed no significant differences in taste, fat content, or the amount of vitamin A, carotene, ascorbic acid, riboflavin, or pantothenic acid. The use of the urea did not appear to affect the reproductive efficiency of the animals.

The Massachusetts Agricultural Experi-

In the preparation of the above material, the following publications were used: Urea as a Protein Supplement in Feeding Dairy Cattle. Nutrition Reviews, 2, (Jan. 1944): 22-25. Urea Adds to the Dairy's Feed Resources: Eastern State Coöperator, May, 1944. Bull. No. 406, Massachusetts Agricultural Experiment Station, 1944. Urea Seen as Extender for Protein Shortages. Feedstuffs, 16, (July 8, 1944): 28.

ment Station has recently reported a three year experiment in which a ration containing the commonly used protein supplements, corn gluten meal, soybean meal, and cottonseed meal, was compared with one in which these supplements were replaced by corn starch as a source of energy and urea.

A statistical analysis showed no significant difference in the average milk yield of the two groups. They report, however, that the trend from year to year in average yield of milk and efficiency of feed utilization favors the group that received the ration containing the protein supplements. Only slight differences were noted between the two groups in respect to length of lactation, dry periods, reproductive performance. Differences in live weight and milk production were small and not statistically significant, but these differences favored the regular ration group.

In summing up the work, the author states: "Results showed that considerable use was made of urea although it is not quite on a par for maintenance and milk production with the standard protein concentrates." In analyzing this work, it must be borne in mind that all of the protein concentrates, corn gluten meal, soybean meal, and cottonseed meal were replaced by corn starch, which supplies only energy and urea. The differences noted may have been due to the removal from the ration of nutrients other than protein which are supplied by the protein concentrates.

Urea should not be mixed into a ration containing raw or improperly cooked soybean meal because the soybean supplies an enzyme which liberates nitrogen from urea as ammonia, thereby making the ration unpalatable. Ground soybeans and rations containing urea can be fed at the same time if desired.

Urea is useful for many purposes during wartime, including the manufacture of plastics and fertilizers and although increasing quantities are being released for feeding purposes, the supply is still too small to be much of a factor in the immediate feed situation. The limited quantity now being made available for feed is being allocated largely to feed manufacturers to replace part of the high protein concentrates they normally use in commercial feed mixtures.

Preservation of Food

The preservation of food involves three major processes: refrigeration, canning, and drying. Time and space must be considered. The time must correspond to the period during which food will keep satisfactorily; space concerns the capacity of shipping facilities.

While the ideal would be indefinite preservation, there is obvious advantage in preserving food from one peak of production to the next. Most foods are seasonal, and they vary in keeping properties. This is especially true of fats which are prone to deteriorate from oxidation or microbial decomposition and thus develop an unpleasant taste under refrigeration. Beef and mutton keep longer than pork and bacon, or rabbit. The most important problem is to prevent putrefaction. Owing to the amount of water contained, eggs change in appearance and flavor by freezing and thawing, but may not lose nutritive value. Much depends upon the conditions under which the animal was killed and dressed. In vegetables, investigations have dealt largely with the conservation or destruction of vitamin C, which often depends upon the degree of refrigeration, although in the case of fruit juices a too low temperature is not desirable. Freezing breaks up the cells of food stuffs and releases oxidative enzymes.

At the Torrey Research Station (Aberdeen, Scotland), sole kept at -30°C . for four years still tasted fresh; in fact, more so than sole as ordinarily served. At -10°C ., microbial action ceases and below that temperature oxidation is extremely slow. Some American plants store meat, poultry, fish, butter, and cream at -18°C .

Canning has great virtues in preserving food. Canned meats and vegetables of the Parry expedition (1824), opened after one hundred years, were still in excellent condition. The vitamin D content of veal fat was but slightly less than that of fresh veal. Vitamins A and D appear to be well preserved in canned goods. While the loss of vitamin C is variable but little of it is destroyed in acid fruits compared with the loss of two thirds of the vitamins in some legumes. Thiamin is likely to be destroyed by heat or in alkaline mediums. Loss in storage is minor.

Drying is a very old method of preserving food. A desiccated soup made from

meat and bones in 1771 was found to be edible and quite unchanged after 160 years. Various dried foods are kept in good condition for a year. Sprayed dried milk, if protected from oxygen, should be as good as fresh pasteurized milk for more than a year, and to retain all of the riboflavin, vitamin A, and carotene. About 10 per cent of the thiamin is lost in drying and about 20 per cent in storing. Many foods are now dried and stored in such a manner that they retain their palatability and a large proportion of their nutritive value when reconstituted. Lifelong preservation is not exceptional for many foods. Combined with the easy transportability of these foods, the advantages in military operations are self-evident.—*Abstracted from Nutrition Reviews, May, 1944.*

Blood Clots and Meat Spots in Hen Eggs

Since from 2 to 4 per cent of hen eggs contain blood clots or meat spots and have to be rejected as repulsive and inedible on that account, the loss to the poultry industry is serious. The objection to eggs so affected is so great that the industry suffers additional losses through the rejection of sound eggs by over-cautious candlers. In a study of 131 hen eggs rejected by candlers, for blood clots and meat spots, Nalbandov and Card of the University of Illinois [*J. Poultry Sci.*, 23, (May, 1944): 170-180] found but 40 per cent affected, while, on the other hand, some affected eggs were found to have been overlooked. The best of candlers cannot find more than 50 to 75 per cent of spotted eggs, these Illinois workers declare, and moreover, the cause has not been disclosed, notwithstanding centuries of investigation. The theory of Aristotle (384-322 B.C.) and of Hieronymus Fabricius (1533-1613, est. A.D.) distinguished surgeon of Padua that the yolk is derived from the blood still stands unchallenged. Nalbandov and Card, mentioned previously, state that bleeding between the follicular wall and vitelline membrane streaks the yolk and if copious forms clots. The so-called meat spots are but modified blood clots. The bleeding precedes ovulation and is influenced by (quoting) "changes in pH and high environmen-

tal temperature either prior to ovulation or during egg formation, or even after the egg is laid."

In the Illinois investigation, no benefit was derived from the administration of vitamins A,C,D,E,K, and P, but combinations of these were not tried. Although the incidence of blood clots is lower in size and number in hens turned out on range, attempts to simulate range conditions as a preventive, including ultraviolet radiation, did not give comparable results. The incidence was highest in 35 per cent of the hens during the second and third laying season and between December and July. The average decrease was 44 per cent the first year, 26 per cent the second year, and 22 per cent the third. Blood clots do not influence hatchability. The condition is hereditary.

World Plagues—A Sample

The foreign plagues section of *Public Health Reports*, of June 16 and 23, 1944, taken at random as a criterion, reports for a given week:

Plague—Egypt, 34 cases, 20 deaths; French West Africa, 1 case; Indo-China, 10 cases (two weeks); Madagascar, 4 cases.

Smallpox—Cameroon (French), 143 cases; India (Bombay), 152 cases, 52 deaths; Calcutta, 267 deaths; Nigeria, 124 cases, 24 deaths; Turkey, 851 cases; Bolivia, 77 cases, 1 death.

Typhus fever—Iraq, 53 cases, 5 deaths (two weeks); Belgium (Namur, Taminés), 1 case; Hungary, 158 cases; Irish Free State, 1 case; Palestine, 70 cases, 6 deaths; Tunisia, 67 cases (two weeks); Bolivia, 18 cases, 12 deaths.

Yellow fever—Belgian Congo, 1 death; Colombia, 4 deaths.

The *Reports* of June 23, give sizeable numbers of typhus fever in Algeria, Bulgaria, Chile, China, Greece, Guatemala, Hungary, Iran, Irish Free State, French Morocco, and Tunisia. The marvel seen in this report, in the midst of a vast global war, is the low incidence of the greatest of tropical plagues in former years—yellow fever—the control of which was given to the world by the Medical Department, U. S. Army, more than forty years ago.

EDITORIAL

What Is the Problem of Veterinary Science?

VETERINARY science has a problem to solve but it is not well known as an erg in human affairs. In the world of this period, as always before, veterinary science has lingered in the limbo of obscurity waiting to be unchained when warring mankind looks around to see what can be done about threatened shortage of food—rationing, hunger, malnutrition, and other gastro-nomic tragedies. Since nothing much was ever done to avoid the reincarceration of veterinary practice with the return of peace and abundance, it was natural that organized veterinary medicine would sooner or later set out to solve the problem of veterinary science in the world's work. The AVMA is shaping its task to that end. Farm animals are such viable sources of essential material that periodical neglect of them is too slow to throw the fear of privation into man as suddenly as does war. So, when this particular war is over, veterinary medicine will have to watch its step or sink into oblivion in the postwar planners world, regardless of the property it saves and the health it preserves. In normal times, man is a care-free gambler.

Strangely, in the pages of history, there are incidents where the care of animals ran both too high and too low. Domestic animals were so deeply venerated by certain Orientals, once upon a time (and are, even to this day), that they became too sacred to kill and eat. The worship stopped secular progress. For certain Occidental populations, on the other hand, the care of animals fell so low as to barely escape complete national obliteration. As veterinary medicine has shaped up in the United States, veterinarians have become manifestly food-minded. In peace, they associated food with public health, and in war with victory, on the ground that firepower and foodpower are companions in military operations. That ragged soldiers, empty mess kits, and hungry children have lost

more wars than lack of powder is the text of the veterinarian's wartime thesis. By the same token, farm animals can throw a scare into Wall Street—if too numerous or too few. Two-cent hogs can be worse than no hogs. If diseases such as hog cholera, swine erysipelas, and/or Salmonella infections step in to level off the general scheme, veterinarians nurse the better idea that weeding out the diseases affords a means of regulating the production of just enough poundage to go around, with benefit to all concerned. Veterinary medicine makes animal production a business not a risk, provided animal health is not sacrificed at the altar of antiscientific practices.

This is not a sermon on history and war. It is intended to enunciate that the veterinary profession of this country, for the first time, is becoming well-enough united to solve "the problem of veterinary science," in planned and orderly fashion, to wit:

Step No. 1.—The situation being what it is, the first step ought to be taken in the public educational system, for, until mankind comprehends its debt to animals, veterinary science will have an uphill pull. It can go on being buried and forgotten, or exhumed and used at man's sweet pleasure as needed. The man-animal relationship in the advance of civilization must be made a component, not a vagary, of liberal education from childhood up. The teacher of vocational agriculture can be made a strong factor in this respect, but the course ought to start in the grammar school and continue through life. Why? Well, for one thing, man's existence without animals lies on the road back to caves and trees. In the field of economy, the difference is between progress and decline, wealth and poverty, malnutrition and vigor. Domestic animals are as necessary to human progress as air and water are essential to human survival.

Step No. 2.—Owing to lack of public interest on the one hand and the difficulty of the task on the other, collecting reliable statistics on losses from animal diseases has been long postponed in this country, vital as such information would be to the intelligent management of the

livestock industry. Setting up some type of program for the compilation of data from which the economic value of veterinary medicine may be assessed has, therefore, become a project of the AVMA. A special committee is now charged with recommending ways and means of accomplishing this needful purpose, since actual figures on losses from farm-animal diseases is the keynote of the veterinary problem, that is, of veterinary science.

Step No. 3.—Declared, active, and continuous cooperation with the various branches of the livestock industry through nationwide dissemination of up-to-date knowledge on disease prevention, hygiene, and sanitation is a part of the general plan of projecting practical economics more fully into the work of the veterinary service. Committees chosen for expertness in their special fields are charged with that commission. Their work is intended to increase production, improve the affluence of veterinary science, and establish closer public relations with the livestock industry. To continue this type of aid to the country, not only "for the duration" but for all time, is the aim.

The first step of these agenda is exotic and beyond our immediate control, but it is none the less significant to the veterinary service on that account. It is no credit to education that children leave grammar school but pitifully informed on the food they eat, and practically unaware of its source. The teaching of zoölogy via the ameba-worm-insect-vertebrate route could be reversed without sacrificing mental discipline or the memorizing of facts. If the other two steps stated above are ours to cultivate and harvest, the first step is the duty of the general educational system over which our influence is practically nil. As one reads in *Natural Principles of Land Use* by the eminent land-management biologist, Edward H. Graham, knowledge of the source of material should be complete and as of the future (quoting): "The occurrence of living things will be determined by man's conscious planning and use of the land." While thrilling detective stories and glamorous films are more entertaining, no story contains more common sense and basic information than the facts about man's dependence upon domestic animals. The making of a flourishing livestock empire by eradicating a tick and of an industry milking 27 million cows by ridding the country of bovine tuberculosis and fighting brucellosis would appear to be appropriate knowledge to include in a liberal education, from grammar school up. What do you think?

Frederick H. Schneider

1874-1944

Frederick H. Schneider (NAT. '96), 70, prominent American veterinarian of North Philadelphia, died July 21, following a major operation and was buried at West Laurel Hill Cemetery, Philadelphia, July 26, surrounded by mourning relatives and a host of admiring friends and reverent colleagues. The deceased will be remembered in the veterinary profession as a man of deeds rather than words, faithful and esteemed since the turn of the century. His span of life covered a period of confusing years of veterinary development. Among his more noteworthy connections were: secretary and president of his state association; member of the state board of veterinary examiners (1914-1923); treasurer of the AVMA (1915-1918); delegate to the House of Representatives (1942-1944); a member of the Association since 1903; member of Alpha Psi and Phi Zeta fraternities. His participation in local, state and national associations was almost constant.

In his extra-professional life one finds Dr. Schneider was chairman of the local Selective Service Board of World War II, and a member of the Union League, the Presbyterian Church, Rotary Club and the Masonic fraternity—all in all, a clean, useful life of plodding in the right direction without thought of personal decoration. He shirked no duty nor sought selfish reward.

The lamented colleague was a native of the Keystone state and is survived by his widow née Harriet M. Warner, of Minnesota, a daughter, a son, Dr. Henry P. Schneider, and a sister, to whom all American veterinarians extend reverential sympathy.

Writing Editorially in a Veterinary Journal

An experienced veterinary editor, who came up the hard way, once advised against writing anything in a veterinary journal without first predicting how selected readers will react. The *modus operandi* was to pick out (in one's mind) a representative figure in each branch of the service: teacher, researcher, state and federal offi-

cial, practitioner (urban and rural), figure out his probable reaction, and then decide whether the editorial should be written. The reading audience being somewhat mixed, the big idea generally goes to the wastebasket. That's why a lot of good ideas are never proposed. What is salve for one blisters the other.

India an Example of Cause and Effect—A Hazard

Writing on the famine now raging in Bengal, the *London Times*, quoted by *Science* (July 28, 1944), points out that the mortality of India is four to eight times that of ours; life expectancy is 26 years, ours is 62; and while 50 per cent of our people live to 69, less than one half of the Indian population reaches 22. One half of India's inhabitants suffer from malaria all the time; and smallpox, tuberculosis, cholera, bubonic plague, blood-worm infection, kala-azar, and many other diseases continuously take a heavy toll of life and health. A large part of the Indian population is underfed. Compared with Occidental standards, millions live near the verge of starvation; malnutrition combined with the diseases mentioned previously, brings extensive poverty through inefficiency, and yet in the face of all this, India's 400 million people are multiplying at the rate of six million annually. These facts (taken from *Science*) are recounted here to confirm the contention of veterinary medicine that human progress and well being vanish where animal production sinks to a low level. That longtime missing link in India's way of life which now threatens all mankind is obvious. Quoting: "The present need is acute. The factor of safety indeed in India is very low. Disorganization or disorder could lead to frightful tragedy." Students of animal industry, particularly the veterinary service of all times, need not be reminded of that. The relation of animal domestication to the march of man and of wisely managed animal production to man's well being are truly strange omissions in the general educational system of this civilization. Only a terrifying war, threatening to catapult great nations into the *oubliette* of human history, jars their statesmen so that they look around to see what's wrong and un-

fortunately, the basic truth seldom comes out. The hazard lies in the "smallness" of the present world and the intermingling of its populations. The remedy is animal industry if not too late to install a sufficient one.

Expanding Veterinary Medicine to Related Fields

The extracurricular use a state can make of the faculty and facilities of its veterinary college is shown in the annual report of the Veterinary Division of Michigan State College, which lists as follows the Division's activities outside of the campus:

- 1) *For the Dairy Husbandry Department*—(a) Prepared section on disease for the bulletin on Calf Raising and discussed cattle diseases with cow testers and short course students.
- 2) *For Animal Husbandry Department*—Checked the health of hogs consigned to brood sow sales, and treated unvaccinated hogs with anti-hog-cholera serum; checked the health of purebred beef cattle consigned to sales, and conducted blood tests; and participated in the conference on nodular worm research.
- 3) *For Veterinarians*—Attended 35 local, district, state, and national meetings with a total attendance of 4,795; edited and assisted staff of *M.S.C. Veterinarian*; assisted in preparing Michigan State College conference for veterinarians; arranged two conferences of extension veterinarians; and presented a paper on that field before the U. S. Live Stock Sanitary Association.
- 4) *For County Agents*—Outlined subject matter on animal-disease control problems and discussed same at the County Agents School.
- 5) *For Farm Security Administration*—Prepared articles on bovine brucellosis and mastitis for FSA Field Reference Manual.
- 6) *For other college departments*—Participated in "Farmers' Question Box" radio broadcasts; conducted breeding demonstrations, and Farmers' Week program; prepared exhibit of the Veterinary Division therefor; and organized a county veterinary service association.

Also, the report signalizes participation in the control of brucellosis, mastitis, horse and sheep parasites, hog cholera, rabies, and equine encephalomyelitis.

To these one could add valuable contributions to the sum of medical and veterinary knowledge through the medium of scientific books, bulletins, and periodical literature.

CURRENT LITERATURE

ABSTRACTS

Brucellosis: Pasteurization Absolute Preventive

These organisms are responsible for brucellosis in man: *Brucella abortus* of cattle, *Brucella suis* of swine, and *Brucella melitensis* of goats and sheep. In man, because of its remission at intervals, it is called undulant fever. Other names in the human being are intermittent typhoid, Malta fever, and goat fever. Any of the three types may cause undulant fever in man but the species *melitensis* which is seldom seen in this country is the most fatal. The organisms are discharged from the uterus, or in milk when the udder is infected. Consumers of raw milk may contract the disease but, relatively, this seldom occurs. Three methods are employed for eradicating the disease in cattle: (1) test and slaughter, (2) test and segregate, and (3) calfhood vaccination. The program of eradication has reduced the incidence of the disease (in cattle) to probably 2 per cent or less. Few outbreaks of undulant fever have been traced to milk, none to pasteurized milk. Eradication and pasteurization diminish the losses and insure the consumer a safe milk.—[K. G. Weckel, *University of Wisconsin*: "What Is Known of Undulant Fever," *Abstract from Milk Plant Monthly in J. Dairy Sci.* 27, (April 1944): A62.]

New Oil Treatment Reduces Spread of Bacteria and Viruses

A germ-trapping, odorless, greaseless, non-sticky oil treatment for floors, blankets, and bedding that traps bacteria and viruses so tightly that they cannot spread into the air is announced by the Preventive Medical Service of the Surgeon General's Office, as a major advance in blocking the spread of respiratory diseases. Dr. Oswald H. Robertson, College of Medicine, University of Chicago, head of the Commission on Air-Borne Infections described the treatment before the Board for the Investigation and Control of Influenza, and Other Epidemic Diseases. Tests at military camps housing 16,000 men showed a reduction of 28 per cent in respiratory ills when floors and blankets were treated. Actual counts of bacteria floating in the air showed even more remarkable declines, 74 per cent; bedding, 90 per cent; and

floors and blankets, 97.2 per cent. The cost was \$6.00 per barrack and germs are trapped for four months. Blankets treated with a final rinse in laundrying at a cost of two cents kept their germs trapped for two months, and were warmer. Oil treatment is pronounced a remarkable achievement in maintaining the health of soldiers in station.—[From Publications Branch, Bureau of Public Relations, War Department, May 15-31, 1944.]

Sulfonamides in Actinomycosis (Human)

Sulfadiazine and sulfathiazole are more fungistatic than sulfanilamide for both anaerobic and aerobic types of actinomycetes. All of them have been used at the Duke Clinic as a part of the treatment of actinomycosis caused by *Actinomyces bovis*. Sulfadiazine seems to be the drug of choice, although sulfamerazine has the theoretical advantages of slower absorption and excretion, keeping the sulfonamide level in the blood at 4 to 6 mg. per cent. After the acute effects of the operation are over, potassium iodide, three times a day, is also given. Being a chronic disease with remission, patients should be kept under observation for a long while after apparently cured.

Approximately 90 per cent of clinical cases are caused by *A. bovis*, the other 10 per cent by aerobic Actinomycetes. Of 26 cases of pulmonary actinomycosis reported, 25 were dead at the time the reports were published. With rest treatment, surgery, vitamins, sulfonamides, and iodides, the patients are now apparently cured.—[Edward F. Benbow, Jr., David T. Smith, and Keith S. Grimson: *Sulfonamide Therapy in Actinomycosis*, *Am. Rev. Tuberc.*, 49, (May, 1944): 395-407.]

The Romance of Russian Science

Impressions to the effect that the ascendancy of science in the U.S.S.R. is but a flare from the last war is not true. The Imperial Academy of Science was founded by Peter the Great in 1718, or more than two centuries ago, and was continued under his widow, Catherine I, after his death in 1725. Neglected during

the short reign of Peter II, it was again patronized by Empress Anne. Scholars from Switzerland, France, Italy, Germany, and Russians who studied in foreign universities, were the professors and the authors of famous monographs. Under the czars of the nineteenth century, education was limited to small groups. Medicine, recognized as a necessity, was however, treated as special knowledge in no way detrimental to the plan for keeping the masses ignorant. Yet in spite of the limitations, Russia produced a galaxy of scientists and scholars comparable to other countries. In 1934 the academy (Soviet Academy of Science) was moved from Leningrad to Moscow. Since then, the advance of Russian science has been rapid. From it there stems (quoting) "the heroic efforts of the Russian people who are making a stand to safeguard their borders and their civilization."—[Frederick E. Brasch, consultant in the history of science. *Library of Congress: "History and Activities of the U.S.S.R Academy of Sciences During the Past Twenty-five Years, Science, 99, (June 2, 1944): 437-441..]*

BOOKS

Guide to Literature of Veterinary Medicine

The field of medical research has leaned too much on laboratory animals and not enough on the field of veterinary medicine which has the status of a science and whose patients have great economic importance besides being available for study. While medical men, for example, still hold that wooden tongue of cattle is caused by the same organism as that which causes actinomyces of man, veterinarians are better informed, being aware that the cause is a bacillus. It was in a farmers' bulletin published in 1894 by the Bureau of Animal Industry that D. E. Salmon first presented information on *Salmonella* now an important genus of microbes specific for man and animals. Theobald Smith through his work on Texas fever led medical science to the belief that "bugs" transmit disease. J. Arthur Meyers, University of Minnesota, has pointed out that the medical profession is forty years behind the veterinary medical profession in the handling of tuberculosis. The contributions of veterinary literature on the use of tyrothricin and the sulfonamides in the treatment of mastitis and local infections are of great value to human medicine, and Stader's reduction splint, which was first used on animals, has been adopted by the U.S. Navy. These are a few facts illustrating the value of veterinary literature in medical research. The *Veterinary Bulletin of Biological Abstracts*, *Index Veterinarius*, and the *Experiment Sta-*

tion Record cover the field of veterinary medicine.—[Florence Harden: *Guides to the Literature of Veterinary Medicine, Bulletin of the Medical Library Association, 32, (April 1944): 230-233.]*

Technic of Electrotherapy

Since among the physical agencies employed in the diagnosis and treatment of disease, electrotherapy is fast reaching a more majestic rating, the authors feel called upon to establish the scientific approach essential to its rational development. The basis is the course in physical medicine given at the Medical School, Northwestern University where, obviously, an attempt is made to replace the empiricism which electrotherapy has yet to discard. The authors, as members of the Northwestern faculty, have written a book that neither overwhelms the novice nor disappoints the expert—a book the veterinarian, belonging as he does to the former group, will appreciate for the fundamental information it contains on the use of electricity in general and its therapeutic limitations.

The text material is organized under four general heads:

(1) The effects and technical application of direct current in two sections: (a) fundamental principles and (b) technique of application.

(2) Electrical muscle stimulation in three sections: (a) electrophysiology, (b) types of apparatus, and (c) application of various currents.

(3) Radiation in three sections: (a) fundamental physics, (b) heat production, and (c) technique of ultraviolet radiation.

(4) High frequency currents in six sections: (a) alternating current theory, (b) high frequency current theory, (c) local application of high frequency currents, (d) effect of high frequency, (e) artificial fever, and (f) physiology of artificial fever.

For the field of animal medicine, by far the most important section at this time is the one on electrical muscle stimulation where it is frankly stated (and all veterinarians agree) that "a muscle cannot function unless the nerve supply returns and it is doubtful whether the above measures (electric currents) shorten the period of regeneration." Here the mind turns to facial paralysis (twisted nose), suprascapular paralysis (sweeny), brachial paralysis, and the crural atrophy of azoturia. In this work, we are assured from up-to-date knowledge of electrotherapy that muscles can be kept in better condition while the slow process of nerve regeneration proceeds, and furthermore that short spells of electric stimulation are less use-

ful than sustained ones. This section, with animal paralyses in mind, is commended for careful study, and so are the many uses of diathermy which are applicable to the practice of veterinary medicine. A readable book, rich in usable ideas and useful information.—[*Technic of Electrotherapy, First Edition, First Printing. By Stafford L. Osborne, M.S., Ph.D., Assistant Professor of Physical Therapy and Harold J. Holmquist, B.S., B.S.(M.E.), Lecturer on Applied Physics, Medical School, Northwestern University. 780 pages. Illustrated. Cloth. Charles C. Thomas, Springfield, Ill., and The Ryerson Press, Toronto. 1944. Price, \$7.50*]

United States Live Stock Sanitary Association—Report

Proceedings of the forty-seventh annual meeting of the USLSSA, Hotel LaSalle, Chicago, Dec. 2-4, 1943 is a documentation of the live-stock-disease situation in the United States as reported by officials and prominent figures in that field. As usual for recent years, little of importance is omitted. This annual report has won the distinction of being a true and complete specification of the animal-disease problems documented by those charged with the duty of solving them. As of this period, it is clear that *brucellosis* and *livestock auction markets* are the two foremost threats to animal production, not to slight, however, the *current feed situation* which has come in to plague the over-zealous advocates of stepping up food supplies by simply multiplying the number of farm animals. The theses on these major subjects by Wight, Birch, Haring, and Traum, Rabstein, and Hutchins, on *brucellosis* of cattle and swine coupled with the report of the Committee on *Brucellosis*, headed by C. R. Donham, are graphic analyses of the *status quo*; the article by Colonel Webb and the Committee on Community Auction Sales, headed by J. M. Sutton are warnings on the development of an outstanding menace to American agriculture; and the address of R. M. Bethke on the feed situation portrays the hazard of maladjustment between feed and animals.

Regrettably, space does not permit even an abridged review of reports on parasitic diseases (Ackert *et al.*) miscellaneous infections (Eichhorn, *et al.*), vesicular exanthema and stomatitis of swine (Duckworth, White, and Schoening), pig mortality (Kernkamp), swine infections (Carr *et al.*), army meat and milk inspection (Col. Noonan), public health (Haskell), meat and milk hygiene (Schalk *et al.*), wartime poultry inspection (Weckler), *Salmonella* carriers in turkeys (Hinshaw and McNeill), Newcastle disease (Beaudette), avian

coccidiosis (Roe and Collins), "Save a hen and Feed a Soldier" (Carpenter), poultry infections (Stafseth *et al.*), canine rabies (Johnson, Schoening *et al.*), retaining veterinarians in disease control (R. W. Smith), animal tuberculosis (Wight), eradication of avian and porcine tuberculosis (H. R. Smith), effect of bovine tuberculosis eradication on human tuberculosis (G. A. Sherman, M.D.).

The officers elected for the fiscal year 1943-1944 are: J. M. Sutton, Georgia, *president*; C. U. Duckworth, California, William Moore, North Carolina, and Will J. Miller, Kansas, *1st, 2nd, and 3rd vice-presidents*, in that order, and R. A. Hendershott, New Jersey, *secretary-treasurer* to succeed himself.

Except for the financial report of Secretary-Treasurer Hendershott and the obituary report by State Veterinarian J. L. Axby of Indiana, the book is not encumbered with the business affairs of the Association. The literary standard is excellent—and shows improvement over previous reports.—[*Proceedings 47th Annual Meeting of the United States Live Stock Sanitary Association. Edited by R. A. Hendershott, Trenton, N. J. Cloth and/or paper. 257 pages. Waverly Press, Baltimore. Price, \$2.00.*]

Standardization of Volumetric Solutions

This is the second edition of an obvious paradise for the chemist, revised and enlarged, a set of methods for preparing volumetric solutions to keep within reach when detailed directives are wanted and scattered material would have to be hunted down in journals and books. Only methods which have stood the test of experience are included. It is a time saver for the expert, not a manual for the beginner. The former will find the book packed with helpful guidance, equations, methods of calculating normalities, and important tabulated data, by an author who, says the foreword, has the experience and background necessary to render a real service.—[*The Standardization of Volumetric Solutions, Second Edition, revised and enlarged. By R. B. Bradstreet, M.S. Cloth. 151 pages. Chemical Publishing Company, Inc., Brooklyn. 1944. Price, \$1.75.*]

Bulletin 266 of the state agricultural experiment station by Lee, Scrivner, and North entitled "Avian Leucosis and Lymphomatosis" is a critical report on the subject in 32 pages, furnished free on application. Economic importance, cause, symptoms, lesions, forms, and a report on experimental work carried out, all read to the regrettable conclusion that "Nothing Specific has been found for treatment, control, and prevention." Address, Director of Experiment Station, Laramie, Wyo.

Diagnostic Methods in Veterinary Medicine

Professor Boddie of the Royal (Dick) Veterinary College, alma mater of our foremost pioneers, fills a gap in English veterinary literature with a manual on diagnosis that ought to become a precious possession among the veterinarians of this period. Whatever one does for the sick, sprouts from diagnosis. Yet, fundamental as diagnosis will always remain in the practice of veterinary medicine, literature on that art between unbendable covers is as rare as a day in June. Not since Malkmus wrote his little manual more than thirty years ago have veterinarians been reminded that in detecting the presence and character of disease, only routine methods leading to the exploration of every nook suffice. Though elementary in fact, such handbooks set down the pattern the good doctor follows in order to make his detective work complete in the interest of all concerned. Short cuts are always risky. Significant phases of illness may be overlooked to plague the diagnostician when it's too late.

This book is a model for the veterinary student and his teacher and for the practitioner who may want to mend his care-free ways. Besides the schedule for the first approach (the preliminary examination), directions are given for the examination of the various apparatus (digestive, respiratory, nervous, locomotory, etc.) and for the modern way of detecting the ordinary ecto- and endoparasites. The closing chapter on clinical hematology by a coauthor (Prof. Holman) is a brief but comprehensive, and quite complete, treatment of the subject. The misspelling of "Tallqvist"—a common error—does not detract from the value of this now essential part of veterinary diagnostics.

Boddie's book which has just come to the reviewer's desk (July, 1944) makes a good first impression that does not decline after careful analysis. Though brevity is charged to "wartime economic standards", it is nevertheless the largest book on the subject we possess. Its text material is quite evenly apportioned among the horse, the dog, and cattle. If the locomotory apparatus gets but one page and the nervous system 34 that imbalance may be accounted for by the "hobby of authorship." The book has the earmark of both teacher and clinician and is crammed with information emerging therefrom.—[*Methods of Diagnosis in Veterinary Medicine*. By George F. Boddie, B.Sc. (Edinburgh), M.R.C.V.S., Professor of Medicine, Royal (Dick) Veterinary College, with a chapter on Clinical Haematology by H. H. Holman, Ph.D., M.R.C.V.S., Pathologist, Animal Disease Research Association, Moredun Institute, Edinburgh. Cloth. 328 pages. Illustrated. Oliver

and Boyd, Ltd., Edinburgh, 1944. Price, 15 shillings.]

Turkey Management

Before animal disease research made blackhead controllable, turkey culture was stymied in almost every attempt to raise large flocks because, in animal production, what doesn't pay isn't done. As the teachings of veterinary science so often repeat, *Disease and Abundance* can't thrive in partnership. The increase of the turkey population from 15,000,000 to more than 34,000,000 head during the last decade corresponds to the effort to conquer blackhead with weapons given into the hands of the turkey raisers by the veterinary research laboratories. Although submerged and seldom emphasized, turkey literature practically all stems from the incontrovertible fact that blackhead control begat abundance, and abundance in turn superimposed the usual diseases of gregarious life. "Management", to the practitioner and the clinical pathologists, is but another name for livestock sanitary science and police which in this case, converged to the fatal protozoan infection commonly called blackhead. As the authors state, "turkey raising was actually reborn... when results of scientific investigation [on blackhead] were made public and applied by turkey raisers." The old story of science always being thirty years ahead of its application (K. F. Meyer) is well buttressed by the unused knowledge of blackhead. From Theobald Smith (1895), V. A. Moore (1896), Pernot (1907) through the next thirty or more years, knowledge of blackhead lay dormant. It seems to have been the discovery that the chicken is the carry-over host which lifted turkey raising to its present, unprecedented level. That credit goes to the work of Pernot (Oregon) and of Curtis (Rhode Island) published in 1907.

Turkey Management is not an ordinary book. It is the summation not only of a romantic development in animal production through disease control by top figures in turkey culture and pathology, but also a fascinating epic of American history. The turkey (= *Meleagris gallopavo*), the big timber-bird of the pioneers, is as truly American as corn, tobacco, and potatoes and the source of such a large amount of delectable food that the veterinarian unaware of the problems embraced in its production must read this book in the line of duty. It is rich in qualifying ideas and information.—[*Turkey Management, Second Edition*. By Stanley J. Marsden, B.S., M.S., Poultry Husbandman, Animal Disease Research Station, Beltsville, Md., and J. Holmes Martin, Head of Poultry Department, Purdue University. Cloth. 752 pages. Illustrated. The Interstate, Danville, Ill. 1944. Price, \$3.50.]

Annual Review of Physiology

Physiologists publish an annual *exposé*—a “year book”—setting down the advancements made in their branch of knowledge. The ground covered and the depths explored earmark this welcome material as a profound addendum to the physiologist's thesaurus, being, as it is, a searching analysis of “what's the news?” in the branch of the biologic sciences charged with clarifying the innermost processes of the living economy. Although frankly, only an acknowledged connoisseur of advanced physiology would feel at ease in writing a *critique* of this classical tome, physiology is too familiar to be dull however and wherever approached. It is the most used and the most usable branch of medicine notwithstanding its many nooks yet to be successfully explored all the way from the exuberant sproutings of the unborn to the withering cytoplasm of the aged. The task of bridging the gap between ordinary and advanced knowledge of physiology is, therefore, a stupendous one, particularly since the avenue between physiology and pathology has become quite narrow. In fact, *hypo* and *hyper* are no longer innocent prefixes of physiologic terminology nor necessarily evil omens in pathology. Throughout this book, the reader will be impressed with the juxtaposition of these two sciences, *vide* the pharmacodynamics and the therapeutics interspersed. As a matter of fact, there can be no offense committed by asserting that this annual review is a highly scientific treatise on the abnormal biologic processes detrimental to higher life and how to discipline the said processes for violating the laws of normalcy.

As a bibliography of current literature and a dissertation crammed with useful information, one will search in vain for its equal. Physiologists deserve a great deal of credit for publishing annually the highlights of so essential a study as physiology, in so convenient a form. The ground touched is quite complete: embryology, growth, neoplasm, metabolism, the skin, respiration, digestive system, liver and bile, the nervous system, endocrines in reproduction, *et al.* Of special value to the veterinarian are the views expressed on ketogenesis, vitamin A storage, neoplastic growth, endocrines in reproduction, blood coagulants and anticoagulants, and other reminders that the mysteries of yesterday become the common knowledge of tomorrow.—[*Annual Review of Physiology*. By James Murray Luck, Editor, and Victor E. Hall, Associate Editor, Stanford University. Cloth 630 pages. 19 authors. American Physiological Society and Annual Reviews, Inc., Stanford University, P. O., Calif. 1944. Price, \$5.00.]

Handbook on Laboratory Animals

(An announcement)

Alastair N. Worden, Institute of Animal Pathology, University of Cambridge, Cambridge, England, announces the early publication of a handbook on the care and management of laboratory animals, by the Universities Federation for Animal Welfare. Although not intended to be a complete monograph on each species, the aim is to provide a concise, practical manual on the subject at a price suitable to technicians and scientists.

The chapters deal with housing and pests, the rat, the mouse, the rabbit, the guinea pig, the vole, the hamster, the cotton rat, the deer mouse,* the ferret, the hedgehog, the pigeon, the fowl, the canary, the frog, the African clawed-toad (*Xenopus laevis*) and certain other amphibia, certain fish, the training of laboratory assistants, the law and practice of animal experimentation, and the use of statistical methods. Material is provided by workers at various laboratories (Lister Institute of Preventive Medicine, London School of Hygiene and Tropical Medicine, Agricultural Research Council's Field Station, Ministry of Agriculture and Fisheries Veterinary Laboratory and its Fisheries Research Section, Harper Adams Agricultural College, Bureau of Animal Population), including hospital laboratories and university departments, National Institute for Medical Research, National Veterinary Medical Association, and individual workers in many fields. Present circumstances make full American coöperation impracticable, though information from the United States and Canada is solicited, and will be gratefully acknowledged.

Subjects upon which information is sought have been widely circulated among British experimentalists in questionnaire form. Its main divisions which are broken down into details are: anesthesia, euthanasia, training and supervision of assistants, source of supply other than breeding, feeding and watering, general management and hygiene, breeding, psychological considerations, and references. Reprints on the topics embraced are requested.

“Sulfonamide Therapy in Veterinary Medicine” by Lewis E. Harris, M.Sc., is the title of an eight-page bulletin published by the Norden Laboratories. It is a review of the current knowledge of the subject covering the therapeutics of five of the more common drugs of the sulfa group—a scholarly and timely brief on an extremely important topic.

Our slogan for National Dog Week: “The dog catchers having failed to cure the stray dog menace, turn the job over to the Boy Scouts and the humane societies.”

THE NEWS

AVMA Activities

New Executive Board Members

Two new members took their places on the Executive Board at the conclusion of the eighty-first annual meeting in Chicago last month. As a result of elections held in dis-



Dr. Walter R. Krill

tricts 4 and 10, B. E. Carlisle of Camilla, Ga., succeeded W. E. Cotton of Auburn, Ala., for a five year term in district 4, and W. R. Krill of Columbus, Ohio, succeeded O. V. Brumley in district 10 for a similar term.

(Write-up of Dr. Carlisle to come)

Walter R. Krill (O.S.U., '27) was born at Edgerton, Ohio, April 13, 1902, and lived on a farm until he entered the College of Agriculture at the Ohio State University in 1919. He majored in animal husbandry and received the degree of B.Sc. in 1923, after which he was a graduate assistant in animal husbandry from 1923 to 1927, and during which time he completed the course in veterinary medicine, receiving his D.V.M. in the latter year.

Dr. Krill was associated with Dr. E. V. Hoover in general practice at Lima, Ohio, from 1927 to 1929. He then returned to the College of Veterinary Medicine at Ohio State and was in charge of the ambulatory clinic for ten years. In 1939, he joined the faculty of the department of veterinary medicine, in which he holds the rank of professor. He is a mem-

ber of Phi Zeta, honorary veterinary fraternity and an honorary member of Alpha Psi and Omega Tau Sigma.

Dr. Krill has been active in state and national association affairs for a number of years. He joined the AVMA in 1930 and has served his state association as delegate to the House of Representatives for five years. He brings to the Executive Board a thorough knowledge of the veterinary service and of veterinary practice in relation to the livestock industry, and a keen appreciation of the challenges which face the veterinary profession.

B. E. Carlisle (A.P.I. '17) of Camilla, Ga., was born at Cleola, Ga., May 27, 1895. He received his veterinary training in the College of Veterinary Medicine, Alabama Polytechnic Institute,



Dr. B. E. Carlisle

receiving the degree of D.V.M. in June, 1917. He was commissioned in the Veterinary Corps, Army of the United States, and served in World War I from Aug. 20, 1917 to May 20, 1919. Since 1919, Dr. Carlisle has conducted a general practice in Georgia. He is a past president of the Georgia Veterinary Medical Association, member of the Georgia State Board of Veterinary Examiners, 1929-1944, and chairman of the Postwar Planning Committee of his state association. For the past two years he has served as resident AVMA secretary and as delegate to the AVMA House of Representatives.

Dr. Carlisle joined the AVMA in 1920 and has taken an active part in professional work, both on a state and national scale, for many years. As a general practitioner, he will be a most capable representative on the Executive Board of the largest segment of the profession and is equally alert to the problems of veterinarians in all branches of service.

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As we go to press, news comes from the 81st annual meeting at the Palmer House, Chicago, that Dr. W. A. Hagan, dean of the New York State Veterinary College, Cornell University, Ithaca, N. Y., has been elected chairman of the Executive Board of the AVMA, succeeding Dr. O. V. Brumley, dean of the College of Veterinary Medicine, The Ohio State University.

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

First Listing

- ALDER, J. L.**
Athol, Kansas.
D.V.M., Kansas City Veterinary College, 1912.
Vouchers: R. F. Coffey and C. W. Bower.
- BARTOLETT, HARRY F. B.**
Park Ave., Freehold, N. J.
V.M.D., University of Pennsylvania, 1937.
Vouchers: L. B. David and P. F. Runyon.
- BIETTI, A. A.**
Avenida Centro-America, No. 1.B., Guatemala City 9, C.A.
M.V.D., Real Escuela de Medicina Veterinaria Milane, 1925.
Vouchers: J. H. Kintner and J. G. Hardenbergh.
- CALDWELL, GEORGE H.**
P. O. Box 408, Yerington, Nev.
D.V.M., Chicago Veterinary College, 1915.
Vouchers: A. E. Wight and E. Records.
- HOYLMAN, ADGER A.**
426 W. 62nd St., Chicago, Ill.
M.D.V., McKillip Veterinary College, 1910.
Vouchers: L. A. Merillat and E. M. Lynn.
- HOWE, IVAN G.**
New York State Dept. of Agriculture and Markets, State Office Bldg., Albany, N. Y.
D.V.M., Cornell University, 1914.
Vouchers: W. S. Stone and A. Winter.
- KNOWLES, JACK O.**
Station Hosp., Fort Worth Army Air Field, Fort Worth, Texas.
V.M.D., University of Pennsylvania, 1938.
Vouchers: J. W. Heaton and G. C. Poppenhouse.
- PENWELL, PARK H.**
15 Port-Mobile—T.C., APO 507—c/o P.M., New York, N. Y.
D.V.M., Texas A. & M. College, 1942.
Vouchers: H. J. Robertson and S. E. Bunton.
- TREGILGUS, T. C.**
Sibley, Iowa.
D.V.M., Iowa State College, 1917.
Vouchers: E. M. Lynn and I. W. Moranville.

- WALTER, M. L.**
1016 W. Cumberland, Knoxville, Tenn.
D.V.M., Kansas City Veterinary College, 1915.
Vouchers: D. Coughlin and H. W. Hayes.
- WATKINS, ROBERT R.**
Prisoner of War Camp, Clarinda, Iowa.
D.V.M., Texas A. & M. College, 1941.
Vouchers: W. C. Schofield and W. O. Brinker.

Second Listing

- Combs, Arthur W.**, 712 Buckley St., Fostoria, Ohio.
- Jose, Alice Fulvio**, Secretaria de Agricultura, Cidade do Salvador, Bahia, Brazil, S. A.
- Murray, John A.**, 2065 Robinson St., Regina, Sask., Can.
- Swaney, Frank C.**, 2921 N. Downer Ave., Milwaukee 11, Wis.
- Swarthout, Edward W.**, P. O. Box 261, Victoria, Texas.
- Wann, Russell S.**, Hdqs. 5th Port, APO 506-c/o P.M., New York, N. Y.

1944 Graduate Applicants

First Listing

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Iowa State College

- BUTSON, WALLACE J.**, D.V.M.
R.F.D. No. 1, Jeffers, Minn.
Vouchers: G. R. Fowler and L. E. St. Clair.
- CHAPIN, WAYNE F.**, D.V.M.
Mantorville, Minn.
Vouchers: H. D. Bergman and C. H. Covault.
- CHAPMAN, GERALD E.**, D.V.M.
Peosta, Iowa.
Vouchers: C. H. Covault and G. R. Fowler.
- COLLINS, WARREN E.**, D.V.M.
West Point, Neb.
Vouchers: C. H. Covault and G. R. Fowler.
- DALE, HOMER E.**, D.V.M.
2120 Lincoln Way, Ames, Iowa.
Vouchers: G. R. Fowler and G. H. Conner.
- DOYLE, KEITH A.**, D.V.M.
Westside, Iowa.
Vouchers: D. A. Smith and G. H. Conner.
- GIBBS, ROLAND J.**, D.V.M.
1201 W. Fourth St., Waterloo, Iowa.
Vouchers: H. D. Bergman and C. H. Covault.
- GRISWOLD, DAVID**, D.V.M.
409 N. 1st St., Winterset, Iowa.
Vouchers: I. A. Merchant and G. H. Conner.
- HARLUETZEL, JACK E.**, D.V.M.
Box 290, Rt. No. 1, Corpus Christi, Texas.
Vouchers: I. A. Merchant and H. D. Bergman.
- HOLDEN, WILLIAM E.**, D.V.M.
General Delivery, Murphysboro, Ill.
Vouchers: M. W. Sloss and L. C. Payne.

- HOLLEN, R. M., D.V.M.
323 W. Green St., Winterset, Iowa.
Vouchers: G. R. Fowler and D. A. Smith.
- KINGREY, BURNELL W., D.V.M.
2120 Lincoln Way, Ames, Iowa.
Vouchers: H. D. Bergman and C. H. Covault.
- KLEAVELAND, R. C., D.V.M.
Sioux Rapids, Iowa.
Vouchers: R. A. Packer and I. A. Merchant.
- LANG, ALLEN N., D.V.M.
Remsen, Iowa.
Vouchers: L. E. St. Clair and G. R. Fowler.
- MCCRACKEN, DONALD D., D.V.M.
Manilla, Iowa.
Vouchers: D. A. Smith and H. F. Beardmore.
- MCINTOSH, ARTHUR J., D.V.M.
Villisca, Iowa.
Vouchers: H. F. Beardmore and I. A. Merchant.
- McMILLAN, MAC, D.V.M.
721 Second Ave., S., Estherville, Iowa.
Vouchers: E. A. Benbrook and C. H. Covault.
- MAGNALL, LAWRENCE J., D.V.M.
Rt. No. 1, Utica, Ill.
Vouchers: H. D. Bergman and G. R. Fowler.
- MEERDINK, PETER B., D.V.M.
Hull, Iowa.
Vouchers: C. H. Covault and G. R. Fowler.
- NELSON, NORMAN M., D.V.M.
Tloga, N. Dak.
Vouchers: C. H. Covault and H. F. Beardmore.
- NIMS, ROBERT M., D.V.M.
Hydro, Okla.
Vouchers: H. F. Beardmore and I. A. Merchant.
- NORTON, ROBERT E., D.V.M.
Maple Plain, Minn.
Vouchers: L. M. Jones and I. A. Merchant.
- REINHART, VIRGIL M., D.V.M.
R.R. No. 2, Carroll, Iowa.
Vouchers: C. H. Covault and G. H. Conner.
- RUEBEL, A. K., D.V.M.
228 S. Riverside, Ames, Iowa.
Vouchers: C. H. Covault and I. A. Merchant.
- SCHELI, DONALD E., D.V.M.
1847 E. Walnut St., Des Moines, Iowa.
Vouchers: D. A. Smith and H. F. Beardmore.
- SEYMOUR, MILFORD R., D.V.M.
Madellia, Minn.
Vouchers: C. H. Covault and G. R. Fowler.
- STROHBEHN, ALVIN R., D.V.M.
Rt. No. 2, Council Bluffs, Iowa.
Vouchers: G. R. Fowler and C. H. Covault.
- SWEENEY, DONNIS E., D.V.M.
1221 S. Cornelia St., Sioux City, Iowa.
Vouchers: N. L. Nelson and G. Raps.
- WEHLER, DUANE R., D.V.M.
Everly, Iowa.
Vouchers: D. A. Smith and H. D. Bergman.
- Bentinck-Smith, John, D.V.M., Co. B., Hdqs. 2 Central Ave., Quarters 4, Ithaca, N. Y.
- Berman, David T., D.V.M., 181 Hawthorne St., Brooklyn, N. Y.
- Byrne, Robert J., D.V.M., 23 Albert St., Middletown, N. Y.
- Clement, Edwin P., D.V.M., 32 Lincoln Ave., Cortland, N. Y.
- Davis, Arthur E., D.V.M., Olivebridge, N. Y.
- Delahanty, Donald D., D.V.M., 6-08 127th St., College Point, N. Y.
- Erb, Frederick A., D.V.M., R.F.D. No. 2, Hudson, N. H.
- Flint, Jack, D.V.M., 400 Triphammer Rd., Ithaca, N. Y.
- Gott, Anne H., D.V.M., Morrell Rd., Pittsford, N. Y.
- Haller, Clyde M., D.V.M., LaFargeville, N. Y.
- Hartley, Clinton E., D.V.M., 158 E. Main St., Amsterdam, N. Y.
- Hoag, Warren G., D.V.M., Roxbury, Delaware Co., N. Y.
- Holden, Chester J., D.V.M., 5 W. Grimsby Rd., Kenmore, N. Y.
- Keith, Florence E., D.V.M., Oswago Dr., Greenlawn, N. Y.
- King, William P., D.V.M., 4 Orchard Pl., Beacon, N. Y.
- Lawrence, David, D.V.M., 1760 Union St., Brooklyn, N. Y.
- Leonard, Harmon C., D.V.M., Cook Hill, Wallingford, Conn.
- Lipman, Arthur, D.V.M., 1127 Fourth St., Portsmouth, Va.
- Lockwood, Floyd A., D.V.M., 210 Williams St., Ithaca, N. Y.
- Lukens, Walter B., D.V.M., 12 W. Prospect Ave., Middletown, N. Y.
- McEntee, Kenneth, D.V.M., Oakfield, N. Y.
- McEvoy, Richard K., D.V.M., Preble, N. Y.
- Maker, Wilber C., D.V.M., P. O. Box 132, Reed's Ferry, N. H.
- Mettler, John J. Jr., D.V.M., Hillsdale, N. Y.
- Moore, Lloyd E. Jr., D.V.M., 344 Locust Ave., Amsterdam, N. Y.
- Morse, Erskine V., D.V.M., c/o Mrs. W. A. Foster, Scarswold Apts., Scarsdale, N. Y.
- Neubecker, Jeanne M., D.V.M., 2514 Cortelyou Rd., Brooklyn, N. Y.
- O'Dea, Joseph C., D.V.M., Gardiner, Ulster Co., N. Y.
- Patton, Herbert W., D.V.M., 695 Dryden Rd., R.D. No. 2, Ithaca, N. Y.
- Porter, David B., D.V.M., 55 Stanley St., Mount Morris, N. Y.
- Povar, Morris L., D.V.M., 1031 Neill Ave., New York, N. Y.
- Rappaport, George E., D.V.M., 39 Vaughn Ave., New Rochelle, N. Y.
- Robinson, Charles R., D.V.M., 15 Walnut St., Madison, N. J.
- Rossoff, Irving S., D.V.M., 1812 Gleason Ave., The Bronx, 60, N. Y.
- Sayres, Joseph P., D.V.M., E. Main St., Box 183, Peekskill, N. Y.
- Tillou, Donald A., D.V.M., 240 Long Ave., Hamburg, N. Y.
- Van Deusen, Carlisle W., D.V.M., 46 Ft. Covington St., Malone, N. Y.
- Vaughn, Thurman C. Jr., D.V.M., Greenville, N. Y.

Second Listing

Colorado State College

McNamara, James H., D.V.M., Versailles, Ky.

Cornell University

Baker, DeWitt T., D.V.M., R.D. No. 4, Ithaca, N. Y.

Basom, Richard R., D.V.M., R.F.D., Corfu, N. Y.

Whitehead, Roland G., D.V.M., Monroe, N. Y.
Young, Clayton S., D.V.M., Randolph, N. Y.

Texas A. & M. College

Brown, Joseph H. Jr., D.V.M., 1209 Bowie,
Amarillo, Texas.
King, J. S., D.V.M., c/o Veterinary Hosp., Col-
lege Station, Texas.
Vezey, Stanley A., D.V.M., Box 247, Faculty
Exchange, College Station, Texas.

Washington State College

Boe, S. Luther, D.V.M., Rt. 11, Box 930, Mil-
waukee, Ore.

U. S. GOVERNMENT

Tuberculosis Control Division.—The Federal Security Agency has established a "Tuberculosis Control Division" in the United States Public Health Service which will wage a ten-million-dollar war against the white plague. Dr. Herman E. Hilleboe who studied at the University of Minnesota and who has had charge of tuberculosis control in the USPHS since 1942 is charged with developing the project. The Division was authorized by Surgeon General Parran and approved by Federal Security Administrator Paul V. McNutt. It will operate under the Bureau of State Services. One of the measures proposed is preventing the spread of tuberculosis in interstate traffic as is done in livestock sanitary work.—*From FSA release of July 10, 1944.*

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Vinegar Ineffective in Avian Coccidiosis.—Work carried out by Parasitologist Ena A. Allen at the Animal Disease Research Station, Beltsville, Md., proved that vinegar solution is worthless in the control of avian coccidiosis. Even dilutions as strong as 5 per cent did not provide any protection.

AMONG THE STATES

Connecticut

State Association.—The regular quarterly meeting of the Connecticut Veterinary Medical Association was held at West Haven, Aug. 2, 1944. The occasion was the sixtieth anniversary of the Association's founding. Geo. E. Corwin, secretary of the organization, presented a historical outline of the Association's progress since the date of its founding Feb. 13, 1884.

s/EDWIN LAITINEN, *Resident Secretary.*

Honduras

Escuela Agricola Panamericana (=Panamerican Agricultural College) of Honduras with its physical equipment and faculty from South and Central America, Puerto Rico, Cuba, Wisconsin, Washington, D. C. and Great Britain is a going institution expressing the growing Panamerican solidarity upon which lasting world peace may depend. It was founded with funds donated by the United Fruit Company which also pledges its permanent maintenance. Its physical equipment includes a section on livestock (pigs, chickens, cattle), extensive acre-



Administration building Escuela Agricola Panamericana, Honduras.

age of experimental fields, forests, pastures, and planted crops, plus the necessary building (in colonial Honduran architecture) and paraphernalia needed to make up a modern educational institution in the agricultural realm—in short a large palatial institute that spells progress in Central America. The curriculum, naturally, is geared to the needs of the American tropics. The students come from many nations of the Americas and besides learning scientific agriculture, in denim and brogans as uniforms, they are taught to speak and write the two American languages—Spanish and English. It is a "work-and-learn" college with a course of three years and an additional year for those who are capable of advancing in specialized fields. One of the noteworthy aims is to have the graduates carry the benefits of agricultural education to their respective communities and help their governments along lines of agricultural extension work, such as is carried out extensively by the agricultural colleges of the United States.

Illinois

Another Chicago "First".—*Dog World*, popular Chicago dog paper, "has more net cash paid full-price circulation than all other all-breed dog publications combined in the United States and Canada"—30,000 for each issue in 1944, certified by A.B.C.—according to a circular published in May. *Our Dog*, published in Manchester, England—a weekly—is also a claimant for that distinction but does not give definite circulation figures, the circular declares.

Idaho

H. R. Groome, of Twin Falls, took over the post of state director of the BAI in July, 1944. He succeeds S. B. Brown, who is now veterinarian for the state sheep commission.

Iowa

Eastern Iowa Association.—*Infectious Animal Disease Bulletin* of the Eastern Iowa Veterinary Association, announces that the annual meeting of the Association set for Oct. 10-11, 1944, will be held at the Roosevelt Hotel instead of at the usual headquarters, hotel of recent years, and suggests that reservations be made now.

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Rabies.—The Eastern Iowa *Infectious Animal Disease Bulletin* of July 16, 1944, reports that, in that region in recent weeks, rabies has been diagnosed in a fox at Lowden, a calf, a lamb, and swine at Keokuk, and in dogs at four scattered places. The diagnoses were confirmed by the laboratory of Iowa University.

Kansas

Faculty Changes at KSC.—Quoting from *Science*, July 28, 1944, "Dr. J. H. Burt has retired as head of the department of anatomy and physiology in the School of Veterinary Medicine but will continue to teach full time. The department has been divided, with Dr. W. M. McLeod as head of the department of anatomy and Dr. E. E. Leasure as head of the department of physiology."

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Free Laboratory Service.—Will J. Miller, livestock sanitary commissioner and Dr. Ralph Graham, federal inspector in charge, have announced that blood samples for the diagnosis of brucellosis will be tested free of charge at the cooperative laboratory in Topeka. A deposit, however, is required to defray mailing charges.

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Criticizes Rabies Diagnostic Service.—The monthly bulletin of the state association (July, 1944) criticizes the prevailing method of diagnosing rabies in pinning all faith in the presence or absence of Negri bodies in the brains submitted to the laboratories, in lieu of implementing the negative finding by animal inoculation, particularly of Swiss mice, the inoculation of which confirms or rejects the microscopic report.

Kentucky

F. M. Kearns, Louisville, secretary and treasurer of the state association succeeds F. H. Riester, who has served in that office for the past eight years. The Association gave Dr.

Riester a standing vote of thanks and appreciation for the good work he has done through that period of time.

Manitoba

At the meeting of the provincial association at Winnipeg, a strong resolution protesting the removal of rural veterinarians for military service was presented on the ground that there is but one practitioner for every two million dollars worth of livestock in the province.—*Veterinary News*, Calgary.

Michigan

State Association.—The sixty-second annual meeting of the Michigan Veterinary Medical Association was held at Michigan State College, June 28-29, 1944. "Another Wartime Meeting Aimed at Wartime Problems," the announcement proposed. The opening session was devoted to a poultry clinic, business session, and motion pictures at the auditorium of the Music Building. The evening session entertainment was by the Junior AVMA and an address by Executive Secretary J. G. Hardenbergh. Motion pictures were provided by W. C. Glenney, Elgin, Ill.; E. E. Leasure, Manhattan, Kan.; A. G. Boyd, Sacramento, Calif.; and B. T. Simms, Auburn, Ala. Papers were presented by:

C. F. Huffman, M.S.C.: "Cattle and Some of the Vitamins."

C. L. Cole and P. A. Hawkins, M.S.C.: "The Phenothiazine Experiment."

D. F. Green, Rahway, N. J.: "The Sulfa Drugs." Discussed by B. V. Alfredson, M.S.C. "Practice Predicaments," related by six practitioners (Eggleston, Kaser, Sthal, Ellis, and Betty Wright and Harriett Harris.)

"Symposium on Brucellosis Vaccination" was presented by J. L. Axby, state veterinarian of Indiana, C. H. Clark, state veterinarian of Michigan, C. H. Hays, of the BAI, A. E. Erickson, practitioner of Charlotte, and I. F. Huddleson, bacteriologist of M.S.C.

"Symposium on Mastitis" comprised "Physiology of the Udder" by W. F. Petersen, of University of Minnesota; "Pathology of Mastitis" by E. T. Hallman, Michigan State College; "Newer Control Developments" by C. S. Bryan, Michigan State College; "Clinical Experiences" by J. W. Cunkelman, Michigan State College; and "The Practitioner Angle" by E. E. Hamann, Greenville.

Nebraska

M. W. Ray (K.C.V.C., '11), associated since 1929 with the Corn States Serum Company as sales representative in South Dakota and south-

western Minnesota, has retired on account of ill health. In retiring, Dr. Ray will carry with him the most priceless of all possessions—the personal and professional respect and confidence of those whom he was associated with and served.

C. C. Foulk (St. Jos., '21), assistant superintendent of biological and serological production, will succeed Dr. Ray in the South Dakota and Minnesota territory, maintaining the excellent service heretofore developed.

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Heavy Increase in Swine Erysipelas.—According to a report publicized by Dr. W. T. Spencer, regional manager of the National Live Stock Loss Prevention Board, there has been a pronounced increase in the incidence of swine erysipelas in northeastern Nebraska and southwestern Iowa this spring, and, as a consequence, condemnations for that disease at government-inspected packing plants have been higher than for the two previous years. Obviously, vaccination has been neglected or too long delayed on many farms. Vaccination at from 1 to 10 days of age is recommended. The danger of vaccination by inexperienced men is stressed.

Ohio

Ohio State Veterinarians on the Air.—W. J. Embree, representative and livestock agent of the New York Central Railroad System, was the guest speaker over station WLW, on the "Keep 'em Healthy Series", of Everybody's Farm Hour, Saturday, Aug. 5, 1944, 12 to 1 p. m. His subject was, "Prevention of Livestock Losses in Transit."

Pennsylvania

Junior AVMA.—The Pennsylvania chapter held its annual banquet July 27, 1944, at the University Club, Philadelphia, with fifty in attendance.

W. A. Hagan, special consultant to the chief of the United States Bureau of Animal Industry, was the guest speaker. He discussed the achievements of the BAI in the past and present; tuberculosis; dourine; introduction of Brahmin cattle into Louisiana; and brucellosis. In closing Dr. Hagan spoke of ethics and sanitation and asked the group to remember these things when in the field practicing.

s/JOHN D. BECK, Resident Secretary.

Peru

Lt. Col. Russell McNellis, V.C., U. S. Army, of the Military Mission to Peru, announces that the *Asociación de Médicos Veterinarios* of Peru has been officially recognized by the national government in "Resolución Suprema No. 2422," dated July 12, 1944. This marks an important advance in the veterinary service of a country where official recognition is necessary for the successful functioning of professional organizations.

The association is headed by Major Aurelio Malaga Alba of the Peruvian army who is a member of the AVMA and an alumnus of Edinburgh. The membership is composed of 20 veterinarians, most of whom are alumni of South American or European veterinary colleges. Citizens of six countries are represented on the roster. Regular monthly meetings for the presentation of technical papers and clinical material are planned along with the intention to sponsor a National Peruvian Congress in the near future.

Quebec

"Zip", a Montreal Airdale, on duty with Canadian troops in London, England, has been recommended to be decorated for distinguished services during air raids—for locating and dragging to safety buried bomb victims.—*Veterinary News*, Calgary.

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McGill University, Montreal, has awarded diplomas of Veterinary Public Health to the following: Joseph Dufresne, La Trappe, P.Q.; John A. Follinsbee, Edmonton, Alta.; Paul Jacob, Montreal; Melville R. Knox, Millbank, Ont.; and Oskar S. Norlund, Ste. Anne de Bellevue, P.Q. This is the first class to receive the D.V.P.H. degree.

Wisconsin

State Association.—A successful meeting was held by the Wisconsin Veterinary Medical Association at the Hotel Witter, Wisconsin Rapids, June 22-23, 1944. There were 175 couples present at the banquet and the guest speaker was Chaplain Roland C. Reny of Truax Field. The following program was presented:

Frank Breed, Lincoln, Neb.: "Swine Diseases."

George Werner, University of Wisconsin: "Dairy Cattle Nutrition and the War."

L. E. Casida, University of Wisconsin: "A Geneticist's Point of View on the Problem of Breeding Health in Dairy Cattle."

M. H. Roepke, Minnesota: "Some of the Fundamental Aspects Regarding Acetonemia in Cattle."

s/JAMES S. HEALY, Resident Secretary.

COMING MEETINGS

American Association for the Advancement of Science. Cleveland, Ohio, Sept. 11-16, 1944. Sam Woodley, Smithsonian Institution Bldg., Washington 25, D. C., assistant secretary.

Texas Veterinary Medical Association. Texas A. & M. College, College Station, Texas, Sept. 25-26, 1944. E. A. Grist, 5101 Calmont St., Fort Worth, Texas, corresponding secretary.

Northern Illinois Veterinary Medical Association. Hotel Faust, Rockford, Ill., Sept. 27, 1944. W. D. Daugherty, 1305 E. 5th St., Sterling, Ill., secretary-treasurer.

American Public Health Association. Hotel Pennsylvania, New York, N. Y., Oct. 3-5, 1944. Reginald M. Atwater, 1790 Broadway, New York, N. Y., chairman, program committee.

Short Course for Veterinarians. Purdue University, Lafayette, Ind., Oct. 5-6, 1944. C. R. Donham, Dept. of Veterinary Science, Purdue University, head.

Eastern Iowa Veterinary Medical Association. Hotel Montrose, Cedar Rapids, Iowa, Oct. 10-11, 1944. C. C. Graham, Wellsburg, Iowa, secretary.

Pennsylvania State Veterinary Medical Association. Penn Harris Hotel, Harrisburg, Pa., Oct. 19-20, 1944. R. C. Snyder, Walnut St. and Copley Rd., Upper Darby, Pa., secretary.

Florida State Veterinary Medical Association. Clarendon Hotel, Daytona Beach, Fla., Oct. 30-31, 1944. J. V. Knapp, Box 389, Tallahassee, Fla., secretary.

Mississippi Valley Veterinary Medical Association. Hotel Custer, Galesburg, Ill., Nov. 15-16, 1944. L. A. Gray, Bushnell, Ill., secretary-treasurer.

United States Live Stock Sanitary Association. LaSalle Hotel, Chicago, Ill., Dec. 6-7-8, 1944. R. A. Hendershott, Trenton, N. J., secretary-treasurer.

Cornell University. Annual Conference for Veterinarians, New York State Veterinary College, Ithaca, N. Y., Jan. 3-4-5, 1945. M. G. Fincher, New York State Veterinary College, acting dean.

STATE BOARD EXAMINATIONS

West Virginia—The West Virginia Veterinary Board will hold its next examination at Hotel Gore, Clarksburg, W. Va., Oct. 2, 1944, at 9 a.m. Applications for examinations must be in the hands of the secretary not later than Sept. 15. For further particulars address

Dr. W. E. Trussell, secretary, Charles Town, Jefferson County, West Virginia.

BIRTHS

Dr. (Colo., '38) and Mrs. H. P. Galloway, Elkhorn, Neb., a son, Robert Henry, Feb. 29, 1944.

Lt. (A.P.I., '43) and Mrs. William D. Nettles, 3090th QM Refrig. Co., Ft. F. E. Warren, Wyo., a daughter, Mary Robbins, May 21, 1944.

Dr. (I.S.C., '37) and Mrs. P. E. Maland, Charles City, Iowa, a son, July 13, 1944.

Lt. (I.S.C., '43) and Mrs. R. C. Banks, Tipton, Iowa, a son, Richard Lynn, July 4, 1944.

Capt. (Corn., '39) and Mrs. Donald A. Wood, Fort Crockett, Texas, a daughter, Marlan, July 18, 1944.

Lt. (A.P.I., '38) and Mrs. V. H. Blumberg, 1106 Constantinople, New Orleans 15, La., a daughter, Ann Carolyn, July 30, 1944.

MARRIAGES

Dr. E. A. Schweim (I.S.C., '43), Pipestone, Minn., to Miss Norma E. McGill, La Porte City, Iowa, Feb. 27, 1944.

Dr. Bryant B. Nisley (Colo., '43), 504 S. 26th Ave., Omaha 5, Neb., to Miss Mildred Knight, Grand Junction, Colo., May 11, 1944.

Dr. Roscoe O. Sealy (Tex., '44), Health Department, San Antonio, Texas, to Miss Jimmie Jo Freeman, College Station, Texas, May 25, 1944.

Dr. David H. Ungs (I.S.C., '43), 302 W. Main, Dyersville, Iowa, to Miss Helen Mae Phelps, Bradford, Ill., July 26, 1944.

DEATHS

J. C. Freeman (K.C.V.C., '15), 72, Youngsville, N. Car., died March 19, 1944. He was long a member of the state association of North Carolina.

Clarence J. Young (K.C.V.C., '04), 60, Fort Worth, Texas, died July 15, 1944. He had served as inspector in charge of meat inspection at Fort Worth since 1931. He had been a member of the AVMA since 1918 and a long time member of the National Association of Federal Veterinarians.

Arthur W. Whitehouse (Ont., '94), Glasgow, Scotland, died May 23, 1944. He had been a member of the AVMA since 1907.

Edward H. Fitch (C.V.C., '15), 71, McHenry, N. Dak., died July 17, 1944. He was associated with the BAI from 1934 until the time of his death. He joined the AVMA in 1916.

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